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A Critical Constructivist Approach to Conceptualizing, Modeling and Measuring Military Leadership in the Finnish Defence Forces

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MILITARY LEADERSHIP

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Acedemic Dissertation to be publicly discussed, by due permission of the Faculty of Education at the University of Helsinki in the Main Building, Lecture Room 5, on the 30th of November 2001, at 12 o'clock.

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Abstract

The purpose of the study was to illustrate the theoretical framework of the new leadership training program in the Finnish Defence Forces (FDF). This theoretical framework has served as a foundation for the current FDF leadership training curricula and it creates preconditions for leadership training practices at all levels of military education in Finland. Therefore this research is both descriptive and prescriptive.

The framework is in accordance with the new leadership paradigm, and it uses the critical constructivist approach. The critical constructivist approach combines mind-centered, interaction-centered and experience-centered theories into one framework of leadership behavior. Depending on individual preferences, situational factors and the phase of the learning process, experiential, interactive and transformative learning methods can and should be applied. Although the practices of leadership training are not the focus of this study, the critical constructivist approach ensures that the frameworks, concepts and models presented here can optimally support learning and effectiveness of training.

From the starting points of the new leadership paradigm, the following basic assumptions have been formulated: 1) there exists a phenomenon called "excellent leadership behavior"; 2) excellent leadership behavior can be modeled in any operational environment; 3) an efficient leadership training program with supplementary frameworks can be built around modeled leadership behavior; 4) leadership behavior can be credibly and reliably measured with a questionnaire constructed on the basis of the model following the principles of full range feedback and 5) the development of leadership behavior is based on the development of the capabilities of an individual, which is to be seen as a life-long process.

The concept of military command is an attempt to justice to the complexity of this large and multi-dimensional concept. Military leadership is a sub-concept of military command and leadership behavior, in turn, is a sub-concept of military leadership. The complexity of the concept of military command is caused by its variable operating environment. The changes in operating environment affect the balance of the respective sub-concepts, and maintaining an optimal balance is the key challenge of military leaders on all levels of leadership. "Leadership paradox" is a term that has been used in the literature in order to describe situations and perspectives in which this balance is missing.

When all the theoretical elements and practical efforts are unified in a military organization, the result is a large-scale leadership training program. Because of its strong connection to the civilian education and leadership practices of the whole society, this kind of program is actually an educational system. In order to function well, it has to be able to develop systematically according to the feedback information produced by an on-going evaluation process. Considering the modeling of excellent leadership behavior, a review of previous research suggests that the model and the respective questionnaire have to be constructed to fit the Finnish society and military culture.

The model has to be supported by the larger frameworks. On the basis of previous research on transformational leadership and Finnish military leadership culture, the Deep Leadership Model (DLM) was formulated. The corresponding questionnaire is the Deep Leadership Questionnaire (DLQ), which is primarily a developmental feedback tool for individual leaders. The experiences, feedback and research concerning the application of the concept of deep leadership to military leadership training have been used for the evaluation and development of the whole leadership training program.

The results of the empirical part of this study support the basic assumptions and the structure of the model. According to a confirmatory factor analysis that was carried out with EQS program, the structure of the DLM as well as the six-factor structure of leadership behavior are consistent with the data. Considering the reliability of the DLQ, the main concern is the controlling and corrective leadership (CL) factor. The analysis of overall validity did not reveal any serious threats to the applicability of the DLM.

The review of individual leadership profiles suggest that the profiles generally progress towards deep leadership along leader selection, education, training and overall experience. This observation leads to the conclusion that the new leadership training program in the FDF does not have to change the organizational culture. Instead, the task for the program is to set some basic standards and to enhance the positive aspects that already exist.

On a level of scientific theory, also some elements and starting points for the constructive theory of leadership have been identified. On the level of theoretical frameworks, two essential frameworks have been defined and analyzed:

1. The general framework of leadership.
2. The constructivist framework for leadership behavior.

On the level of concepts, several core concepts have been studied and defined:

1. The concept of scientific paradigm.
2. The concept of military leadership.
3. The concept of individual potential.
4. The concept of leadership behavior.

On the level of models, two essential models have been created:

1. The conceptual model of military command.
2. The Deep Leadership Model (DLM), which has also been statistically tested.

On the level of measurement tools, a tool for evaluating personal leadership behavior has been developed and statistically tested. The tool - the Deep Leadership Questionnaire (DLQ) - has been built in an analogical process according to the respective models, concepts and frameworks.

Thus I see my research as an entity, each part supporting the other elements (parts I, II, and III) and on the other hand creating the basis for lower-level analysis in the hierarchy of the tools of science. I consider the results of the empirical part of my work to be important, but personally I think that even more important is the development of the meta-science of leadership and the effectiveness of the leadership training in the training system of the FDF.

There are several needs for further research. In methodology, the use of soft computing methods is a relevant challenge. Theoretically, it is be possible to formulate a constructive theory of leadership in which the concepts of learning and leadership tend to merge and coincide. This remains an inspiring challenge for the future. The new leadership training program should be studied from the point of view of scientific paradigms other than the new paradigm of leadership.

Keywords: Critical constructivist approach, military leadership,leadership training, feedback, deep leadership model, leadership profile.

FOREWORD

This study has been born and has developed as the result of a six-year intensive process. The framework of the process has been the training system of the Finnish Defence Forces in its entirety. During these six years the framework has been enlivened by the great structural changes that have been targeted at the training system of conscripts and regular personnel in the FDF. The concrete renewal of the training systems has been a change that has in practice made possible the extensive execution of the new leadership training program.

The framework described above has been supported by my opportunity to participate especially in the development of leadership training of military leaders even at international level. The added value I have obtained from this cooperation has been a significant part of the whole process. When it comes to the scientific level of this reserarch, I cannot overestimate the importance of feedback I have received from the international scientific community especially concerning the development of the statistical part of my work. The knowledge, experiences and ideas I have obtained from international seminars and meetings have become concrete especially in methodical solutions all the way to teaching materials. Modern peace support operations (PSO's) led by NAṬO have wakened European researchers of military leadership to seek a common framework and foundation for their training solutions. The most gratifying aspect of this forum has been the openness with which it has been possible to bring up and deal with even sensitive questions.

Inside the framework the actual work has taken place in an arrangement in which I have taken my research forward in the National Defence College as both an instructor of leadership skills and full researcher. The starting shot for the dissertation process was fired in summer 1995 when I was graduating from the General Staff Officer Course. I knew I would get the position of instructor of leadership skills of cadets that I had wanted. I also knew that my duty would be to develop the syllabus in question. I found my professional skills inadequate in that situation and I immediately commenced postgraduate studies in the University of Helsinki's Faculty of Education.

I have described the development process of the leadership training program in more detail in the book "Uuteen johtajakoulutukseen (2000)". Because I was at that time working as a regular instructor - the task expanded later to a national role as the instructor

of the new leadership training program - and as a researcher developing something new, it was more or less action research.

The arrangement was most favorable for the development of leadership training, because

- I had the opportunity to try out in a controlled manner various contentual and methodical solutions particularly in an environment (cadets) that would yield feedback I believed would be both proficient and critical enough for real development purposes,
- I could constantly transfer both the deepening concept of learning produced by the studies of pedagogics and the results of international cooperation directly to the process, and
- as a "national instructor", I was in direct contact with the basic level of training, i.e. conscript training taking place in field companies, and this way the direct feedback from military instructors was included unfiltered in the development work.

The past years also include various separate projects and events that have provided new information and even new understanding especially on feedback systems and the human factors related to them. These projects have included the development of the feedback system of the National Defence College and my task as the executing chief of the exercise evaluation of the 1999 Nordic Peace exercise. All questions that relate to the concept of feedback and more extensively to feedback systems are from the viewpoint of leadership training both interesting and necessary.

The arrangement described above could have made possible the application of several approaches to a doctoral dissertation: for example action research, being based on experiences produced by the process, could have been one possible, primarily qualitative approach to leadership training. However, the immensity and complexity of the research subject and the phenomenon behind it is such that after various intermediary phases I ended up with the current research orientation. I will discuss my conceptions on the study of leadership and the structure of this research more specifically in the introduction. Nevertheless, I hope that the reader takes into consideration the framework and arrangement I have brought out in the foreword in which the process has progressed in the course of years. Being a part of an officer's career and extensive organization means that all phases of the development process were not up to me to decide.

Because I had personally been through current officers' training system, my knowledge and experiences of the procedures and structures of the academic world was almost minimal in the summer of 1995. The commencement of the study of pedagogics with all the practical questions it involved all the way to the advanced studies was a time during which the support, feedback and actual help provided by Docent, Lieutenant Colonel (G.S.) Veikko Pentti was a concrete example of cadet spirit and mutual support across generations.

Cooperation with the supervisors of the actual dissertation stage has from my viewpoint been seamless. Professor Hannele Niemi is not only an authority but also a fellow human being, who I know understands the life of an adult who studies alongside work. A whole other chapter is the way Professor Patrik Scheinin, the other supervisor of my dissertation, entered into the empirical data of the study, all the way to the psychometric analysis of the deep leadership questionnaire. During the past years I have supervised dozens of theses and I value the concrete help I received from him more than I have been able to show in practice.

By analyzing my quantitative material I will attempt to show the existence of certain latent characteristics, i.e. latent structures on the background of observable factors. I see the same phenomenon in the process of my own graduate studies and I consider myself lucky, as I do concerning my own material. Professor Emeritus Erkki A. Niskanen is the "gray eminence" who from the time we first met has created faith in the success of the entire process. As an important scientific authority his guidance and encouragement has had a great significance in my coping. Doctor Vesa A. Niskanen had an important role in finalizing the empirical part of this research and looking for the future with “fuzzy” ideas.

If my framework is the training system of the Defence Forces, the theater of my arrangement has been the work community of the National Defence College's Department of Management and Leadership Studies. Service of over five years in one and the same unit is sufficient to give an inside view to things. Even as a researcher, I dare say that similar units that fulfill the most important characteristics of a learning organization are still very few at least in the Defence Forces. I owe my deep gratitude to each of my superiors and colleagues, because in a different atmosphere this process would never have progressed further than the start. The English skills of Laura Loikkanen were necessary, to say the least, when the finishing touches were put to my dissertation.

I will not even attempt to describe the importance of my family, Jaana, Iida and Elina, in making possible to cope mentally through this process. I also believe that along their education, my parents did give me something precious in the level of personal values and beliefs as a basis of all my actions.

Finally, let us take a look at a training company where the new leadership training program has been introduced in an unprejudiced manner, applying it to the company's operating environment. We see conscripts being mustered out. They are motivated, they believe in the performance ability of their own war time group and they have a positive attitude towards national defence as well as the concrete maintenance of good physical condition. Their squad leaders get a pat on the shoulder and this shows that during tough exercises trust, cohesion and the spirit of 'us' has been born.

The being of these Finnish men and women moving to the reserve communicates relief and the expectation of new things, but beneath, at the level of values and attitudes, the months spent in the training system of the Defence Forces are not a part of life left behind. Their self-confidence has grown. They have a positive outlook on their future and they believe that they will be able to function in society in a critical and constructive way. They respect the values democratic society is built on. In the end, they are prepared for extreme efforts when defending these values.

Also the leader thinks ahead in life, a leadership portfolio in his backpack. He values the leadership training he has received and knows that he is able to develop further as a leader in his civilian duties. Studies have to be taken care of first, of course. To the young leader, personal feedback is not a curse word but a tool of continuous learning. He wants to learn and during his leadership period he has learned to learn. Encouraging feedback has supported him in this process.

I want to end my foreword with this image, because I know
that to all the people who have supported my work, this
image represents the values for which we do what we do.

Helsinki, October 15, 2001
Vesa Nissinen

CONTENTS

FIGURES IN TEXT *Page*

TABLES IN TEXT *Page*

ABBREVIATIONS IN TEXT

ARI	U.S. Army Research Institute
BBNFI	Bentler-Bonnett Normed Fit Index
BDC	Baltic Defence College
BT	Building Trust and Confidence
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CL	Controlling and Corrective Leadership
CR	Contingent reward
D	Residual (factor)
DCO	Deputy Commander
DL	Deep Leadership
DLM	Deep Leadership Model
DLQ	Deep Leadership Questionnaire
E	Residual (variable)
EQS	Statistical program based on Structural Equations
EE	Extra Effort
EF	Effectiveness
EFA	Explanatory Factor Analysis
F	Factor
FDF	Finnish Defence Forces
FRL	Full Range of Leadership
GFI	Goodness-of-fit Index
GTL	Global Transformational Leadership Scale
IC	Individualized Consideration
II	Idealized influence
IM	Inspirational Motivation
IS	Intellectual Stimulation
JRTC	Joint Readiness Training Camp
LBDQ	Leader Behavior Description Questionnaire
LF	Laissez-faire leadership
LISREL	Linear Structural Relations
LPI	Leadership Practices Inventory
MBE-A	Management-by-expection (active)
MBE-P	Management-by-expection (passive)
ML	Maximum likelihood
MLQ	Multifactor Leadership Questionnaire
MPS	Managerial Practices Survey
NDC	National Defence College
NFI	Normed Fit Index
NNFI	Non-Normed Fit Index
OC	Outcomes
OCB	Organizational Citizenship Behavior
PfP	Partnership for Peace
PC	Platoon Commander
PI	Platoon Instructor
PL	Passive Leadership
PSO	Peace Support Operation
PO	Professional Skills
RDAS	Rapid Data Analysis System
RLS	Reweighted Least Squares

SA	Satisfaction
SEM	Structural Equation Model
SL	Squad Leader
TLI	Transformational Leadership Behavior Inventory
V	Variable (measured)

PART I

THEORETICAL FRAMEWORK

"If we define leadership as not merely a property or activity of leaders but as relationship between leaders and a multitude of followers of many types, if we see leaders as interacting with followers in a great merging of motivations and purposes of both, and if we turn we find that many of those motivations and purposes are common to vast numbers of humankind in many cultures, then could we expect to identify patterns of leadership behavior permitting plausible generalizations about the ways in which leaders generally behave."

James MacGregor Burns (1978, 30)

1. INTRODUCTION

This research is built generally from the research tradition of social science and in the area of leadership especially from the research procedures of behavioral science. The scientific interest of the study is primarily practical, directed towards the development of leadership training. This interest also divides the theoretic foundation of the study into two parts, the pillars of leadership and training. In the area of leadership I commit to the theoretical assumptions of the new paradigm of leadership. In the area of training I commit to the critical constructive concept of learning.

The basic theoretical choices mentioned above have become clearer and clearer as the research process has progressed. The culmination point in the building of the theoretical foundation turned out to be my realization of the interaction between the new paradigm of leadership and the constructive concept of learning, which in my opinion is not only compatibility but more profound scientific harmony. I believe that further studies will bring to the surface the implicit assumption of my own research orientation on the fact that the deep structure of both transformational leadership and the constructive concept of learning is one shared functional mechanism that the means of science have not yet been able to extensively describe.

As the structure of my study will show, I will attempt to understand and interpret an extensive entity from the viewpoint of leadership training. For this reason the conceptual field of my theoretical framework is challenging and multi-dimensional. The conceptual immensity of my study may be a bit unusual for a thesis, but so has been the practical effect of my study on the training of the Finnish Defence Forces (FDF). Outlining the research area in many different ways would have been possible and it would even have helped the writing of the research. However, I believe that in its current extent my research can function as a basic study that provides justification for the further development of the leadership culture of the FDF.

1.1 The study's starting points in the philosophy of science

International research that falls in the sphere of the new paradigm of leadership is surprisingly extensive. Every reader can make observations about the vastness of this research by familiarizing himself with the material available, for example using search engines in the internet with 'transformational' and 'leadership' as search words. The results

of the search with these keywords will show thousands of finds - books, research reports, study material, leadership training programs - all over the world. There is, however, reason to ask the question *What are the starting points in the philosophy of science that research in this viewpoint is based on?*

The theoretical "recovery" of the study of leadership is based on the rise of the new paradigm from the 1980s. As a manifestation of the criticism inside the paradigm, studies that specifically called for deeper theoretical anchoring on the background of vast practical-empirical research began to surface. For example Mann (1987) ended up using the term "theoretical desperation" when describing the theoretical hollowness of most studies. Among practitioners, there is a tendency to view philosophic debates as arid and abstruse, if not complitely sterile:

> *"Epistemological positions have practical consequences that are of great concern to psychologists and educators, and thouch them in a direct and vital manner"* (Case 1996, 94).

In the philosophy of science the problems of the study of leadership become concrete already at a very low level. The basic challenge is the fact that the concept of leadership is still unclear. The reason for this conceptual unclarity may be the complexity that results from multi-dimensional and multi-layered concept and our ability to perceive such phenomenon. The natural result of this conceptual incommensurability is the profusion of the basic tools of science, i.e. concepts and models in the study of leadership. The actual formation of theory in the study of leadership has in practice been difficult from these starting points. Figure 1 will show my perception of how the basic tools of science are related to each other as a part of the formation of theory.

Through their practices both public and private organizations have nevertheless observed the importance of leadership on success. This premise has given any researchers an opportunity to introduce their own models, which may often have practical reflecting power and functional value in the basis of leadership training but a foundation in meta-science and above all the philosophy of science may be completely lacking.

As I will analyze in chapter 3 in more detail, the new paradigm of leadership is very promising especially because of its meta-scientific possibilities. In the philosophy of science, the effect of American neopragmatism shows on the background of the

paradigm. Still a part of, for example, the current study of the school of transformational leadership represents certain extreme empirism, the interest of which does not really extend outside the observation-concept-model -dimension.

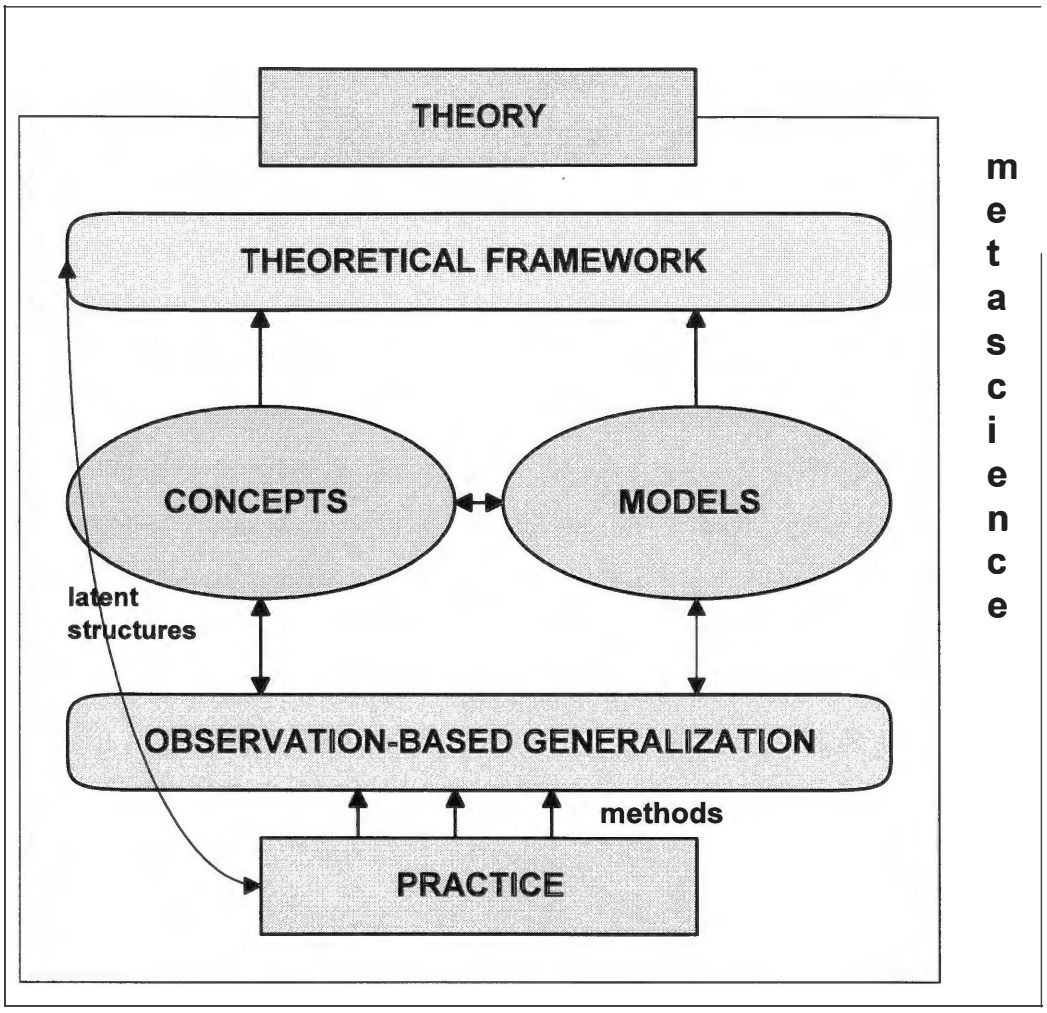


Figure 1. The framework of my meta-scientific orientation.

At some point, a scientifically acceptable paradigm will nevertheless clarify its basic assumptions concerning the philosophy of science and its metascientific starting points. Actually, on the basis of current research the new paradigm of leadership seems to have expansion possibilities even to the construction of a general theory of leadership. Connections to the constructive concept of learning and the transformative theory of adult learning (Mezirow, 1991) also create a network-like concept structure on the basis of which the formation of theory would seem possible.

The purpose of research methods is to build reliable paths for scientific inductions and deductions from observations and generalizations for both the formation of concepts and the building and testing of models. The objectivity of scientific methods is relative. The following demands must nevertheless be met:

- the characteristics of the research subject are independent of the researcher,
- scientific knowledge is born out of the interaction between the subject and the researcher,
- in the end the source and criteria of information is the experience obtainable from the subject, and
- it is possible to obtain scientific knowledge from the subject and to reach consensus in the scientific community regarding the nature of the knowledge obtained. (Niiniluoto 1980, 83.)

In epistemology, the meaning of theory and practice is questioned (Airaksinen 1994, 10 - 12). There are many different types of scientific knowledge: practical knowledge, processual knowledge, informational knowledge and theoretical knowledge (Turunen 1990, 68 - 83). Further on, the concept of scientific knowledge is changing; the complexity will remain, but there is a movement towards qvasilogic (Niiniluoto 1996, 54 - 66). The theory of fuzzy systems by Zadeh will bring a new dimension to the concept of scientific knowledge; this approach is building connections between East and West, physical and human sciences, quantitative and qualitative methods. This approach will enlarge the concept of scientific knowledge to more unprecise and more flexible direction. (Niskanen 2001.)

Modeling in behavioral research is an important source of theorizing. We can consider models as well-developed descriptive analogies used to help visualize, often in a simplified and imitative way, phenomena that cannot be easily or directly observed. Each model is thus a projection of a possible system of relationships among phenomena, realized in material, verbal, or symbolic terms. Replica models are usually material or pictorial representations made with a change in spatial or temporal scale. Symbolic models tend to be intangible, using abstract verbal, graphic, or symbolic representation to stand for conceptual systems. (Anderson & Burns 1989, 30.)

Concept formation is one of the central processes of scientific work. Descriptive definitions attempt to describe the established meaning of a term already in use or its extension. They are analytical or non-analytical in nature. Stipulative definitions give a new meaning to an old term or they form a proposal of the linguistic meaning and contents of an entirely new term. Their purpose is to increase, simplify and clarify scientific terminology. (Niiniluoto 1980, 158-161.)

Concept formation is related to the scientific orientation of the researcher. In the new paradigm of leadership, the concept of leadership behavior, which I will define in chapter 2, has become central. Phenomenology in its non-existential sense surfaces unavoidably in connection with leadership behavior. The research subject of *phenomenology* is, after all, all acts that have a semantic content and it studies the semantic dimensions of the acts of consciousness. The starting point of Husserl is, for example, how our consciousness constitutes the outside world. The tool of intentionality is the observation. The observation depends on the circumstances and time dismembers it.

Still, the observation includes a constituting dimension: our minds construct an entire meaning from even a small observation. This is partly why phenomenology is so interested in concepts and conceptual cognitive structures. On the other hand, Husserl brings out strongly the limits and problems of science, especially when there is an attempt to understand and measure psychological phenomena as if they were physical. (Niiniluoto & Saarinen 1989, 118-134.)

Cognitivism is seen to have created preconditions for the surfacing of constructivism and in this sense for the birth of the constructive concept of learning. According to constructivism, the goals of science are theoretical in the end. Doing scientific work is not solely advisory or even decision-making; it is seeking the truth. A theory on inductive reasoning is also needed. Such cognitivism is not absolute, it accepts hypotheses with reservation and sees their experiential nature. Let us think of statistical methods: it is not possible to achieve with them results that as such would be integrated to the entity of scientific knowledge. With those methods, it is possible to justify different recommendations for action. (Niiniluoto 1983, 71-100).

The spread of the principles of cognitivism to the area of education in the international scientific community gave the starting push to the development of a constructive model of learning. Soon it was possible to tie to this discussion questions and problems that had puzzled pedagogs for a long time and on the other hand needs that had been brought forward by constantly accelerating social change. The demands of life-long learning, learning to learn and human's renewal ability gained a permanent foothold in the trend that was growing into constructivism. (Rauste-von Wright & von Wright 1994, 114 - 120.)

Constructivism is today a multidisciplinary current that combines different scientific fields and trends from the viewpoint of pedagogics. Pedagogic psychology is learning-wise a

central field of science: through Herbart's pedagogic psychology, Dewey's progressive pedagogics, behaviorism, the humanist concept of learning and experiential learning we have come to the road of constructivism (Kolb 1984, 4 - 19; Anderson & Burns 1989, 10 - 34; Puolimatka 1995, 127 - 133).

The significance of social interaction and situational factors to learning has brought alongside the purely constructive approach a view that emphasizes human activity as an entire personality (that knows, feels and acts). In pedagogics, this view can be seen to be based on the behavioral goal taxonomies of Bloom, Krathwohl and Masia (1956). On the other hand, the emphasis on social interaction points strongly to the theory of communicative action of Habermas and Apel (Mezirow 1991, 64 - 78; Habermas 1994, 68 - 72). As we move into the future, it seems possible that territorial issues of the three main disciplines - empiricist, rationalist, and sociohistoric - will become clearer and that attempts at boundary delineation and/or synthesis can be anticipated (Case 1996, 94).

Miettinen (2000) discusses the concept of constructivism in its various usages and applications. He proposes four methodological criteria which he uses to divide pedagogical views into three groups: theories of individual awareness (mind-centered approach), post-modern and critical-dialogical theories (interaction-centered approach) and theories anchored in concrete actions designed to change the world around us (experience-centered approach). Miettinen reminds, that it is necessary to study changes of learning itself in our society´s changing practices.

In its metascientific essence, the concept of constructivism is nevertheless still incoherent and unclear because of its multidisciplinary background. As a tool of science I have chosen to use a more limited theoretical entity, the critical constructivist approach, which also describes my research orientation throughout this research. Already at this stage there is reason to remind that using the constructive concept of learning as the main thought of the analysis of training and education does not exclude the usefulness and even necessity of behaviorist methods in military training (Lehtinen 1996, 162 - 164). Thus, in the era of military leadership training the behaviorist concept of learning can no longer challenge the constructive concept of learning in theory or practice (Bass 1998a, 98 - 99). This is a question of synthesis and balance, as discussed in chapter 2.

1.2 Leadership as a social phenomenon

Social sciences study society, which consists of people, social practices and forms of interaction. Research directed at society is forced to operate on two systems of concepts: practical and theoretical. Society in itself has its own system of meaning that has a certain relationship to research that is external and aims for an objective view. Objectivity is relative, too: theoretical and conceptual choices often include forms that are either normative or value-emphasized. It is thus essential in this sense to realize the starting points of one's own research and weigh the results based on this fact. (Alkula et al 1994, 13-16.)

The pioneer of the new paradigm of leadership, political and social scientist James MacGregor Burns (1978) analyzes his social thinking in a framework in which a more extensive concept creates a foundation for a more narrow concept. The framework is built on the following concepts:

1. *Historical causation*: covers everything that has happened to people in the course of history, also for reasons not dependent on mankind.
2. *Social causation*: that part of historical development that humans have brought about by their own efforts and decisions.
3. *Power*: that part of social development that is related to the intended, purposeful activities of persons with power resources, despite what the moral justifications of such activities may be.
4. *Political power*: that part of social development that is legitimate from the viewpoint of the members of a certain community (covers both sovereign communities and various revolutionary movements)
5. *Political leadership*: that part of the exercise of political power that strives for the achievement of real change, i.e. the achievement of collectively accepted change. (Burns 1978, 433 - 435.)

According to Burns, leadership is a phenomenon *connected to culture and context*. Burns does not want leadership to surrender before tradition or established organizational culture, but he notes that *change* often requires long-term work. Change is always related to the reshaping of at least pragmatic values. In Burns's opinion, values are at their highest when they are defined in our collective consciousness on the basis of universally accepted principles (uniformity, equality, human rights).

Schein (1992) extensively deals with the concept of organizational culture and considers the importance of leadership to be a builder of culture. Schein also reaches for the level of leadership metascience when he writes:

> "*..organizational missions, primary tasks, and goals reflect basic assumptions about the nature of human activity and the ultimate relationship between the organization and its environment*" (Schein 1992, 94).

One of his basic assumptions is the nature of human relationship. This concept covers the shared assumptions that define what is ultimately the right way for people to relate to each other and to distribute power. *Is life cooperative or competitive; individualistic, group collaborative or communal?*

Bass (1985) deals with the connection between organizational culture and leadership with principles that approach the thoughts of Schein. According to Bass, organizational culture consists of basic values, philosophy of action and logical choices directed at technology, economy and personnel. The forms of culture are visible in professional language, traditions, humor, role models and ceremonies. Culture gives a common interpretation to events, defines organizational borders and gives people a foundation for the development of a community, loyalty and commitment. In the context of an military organization, I will study the relationship between organization and culture more detailed in the chapter 3. Thus, essential in Bass's interpretation is the observation that:

> "*The transactional leader works within the organizational culture as it exists; the transformational leader changes the organizational culture*" (Bass 1985, 24).

If there is a new paradigm of leadership, what is the old one? The statement above is one of the key issues when answering that question: movement from deductive thinking road builders (managers) to inductive thinking path finders (leaders). There is also another conceptual starting point: movement from behavioristic concept of learning to critical constructivist approach. The "old paradigm of leadership" described how to lead. The new paradigm of leadership describes, how to learn to lead.

Generally speaking social science has sought its direction from the cross-swell of constructivism and critical realism. Habermas's normative universalism and postmodern

relativism are examples of this. Social science also cannot remain only in print; it has to reclaim its public role. One of the central questions is the connection between knowledge and the social context. This view is emphasized in both methodology and practice. Building a link between natural and social sciences and organizing the methodological disunity are the challenges of our post-empiricist era. (Delanty 1997, 110.)

In positive and hermeneutic value free social science the subject is passive, but in constructivism the subject is active. Reality is formed as a result of the cognitive processes of the individual. This view does not prohibit the existence of reality outside the subject, but on the other hand it notes that to us it manifests itself in the form of the empirical structures of science. In one sense science is a prisoner of its methods. Critical realists call for stricter objectivity to the methods of social science; criticism can be transformative (Longino 1990, 73). In my approach, our reality is socially constructed (Niemi 1999, 216).

1.3 Research approach

As a whole my method is probably a critical discourse of social reality, in which the combining of various methods and views makes it possible to understand, measure and explain the phenomenon being studied from the viewpoints of the philosophy of science that I have chosen. My thinking moves between hermeneutics and analytical philosophy. I believe that certain methods are not tied to the view of categorical philosophy of science. My relationship to constructivism is critical, because I make a clear break away from cognitivism and, on the other hand, I prefer to synthezise the main schools of constructivist approach as well as the behavioristic tradition into one framework. In my opinion, as an actor a human being is always an entire person whose activities and behavior visible to the outside are not solely based on cognitive processes (Reynolds et al 1996, 103). For example self-reflection requires as much meta-affective potential as meta-cognitive potential. Otherwise the view of human beings, the conception of knowledge and the approach to learning assumed by the constructive concept of learning fit right into my thinking.

As already stated, observations cannot be the only starting point of knowledge. Experience is a one part of learning and the formation of knowledge from the perspective of an individual as well as a more extensive social community. As a concept, the world of experiences is important because it helps people understand the paradoxical basic nature

of leadership - in a way the leader invades another person's world of experiences. Along with the study of transformational leadership, I have also begun to think that there can exist social phenomena that are both latent and universal in nature. Because humans are genetically different, universality can take place only through collective consciousness which is not necessarily tied to culture. Leadership is comprehensive interaction that is not necessarily totally dependent on language. Studying leadership in a way that includes meaning perspectives would thus require a phenomenological research orientation.

My research orientation is both hermeneutic and logical-empiricist. A hermeneutic research orientation is about theory formation and the construction of individual theoretical assumptions (Niiniluoto 1983, 167). I hope that as a whole my study will offer a theoretical framework for further research at least in the National Defence College (NDC). Constructing a theoretical framework around leadership training and especially the development of leadership training requires not only basic study but also the synthesizing of information based on a clear outlook and already existing information. As I stated earlier, leadership includes phenomena that cannot be directly observed - the logical-empiricist research orientation is not extensive enough also for this reason.

My research has parts typical to action research, after all I am studying my own work and I have stored plenty of material related to it, e.g. student feedback. Achieving total objectivity is not possible from this viewpoint, either. It is difficult to convince yourself that your research is completely value-free - some people will think that it weakens the scientific value of my study. However, I will not give in to the extremely pragmatic ecstasy so typical to the study of leadership today, even though my empirical data would make it possible. I hope that in the future my research will shed some light into the fascinating reality of leadership for the part of both theory and practice and above all to the focal point of the two.

1.4 The structure of the study

The study is constructed both conceptually and concretely in the form presented in Figure 2. The theoretical framework of my study is made up of the five first chapters, including this introduction. In the second chapter I will present my view on the critical constructive concept of learning that defines my research orientation throughout the research. I justify this approach by the fact already mentioned: the scientific interest of the study is directed towards the development of leadership training.

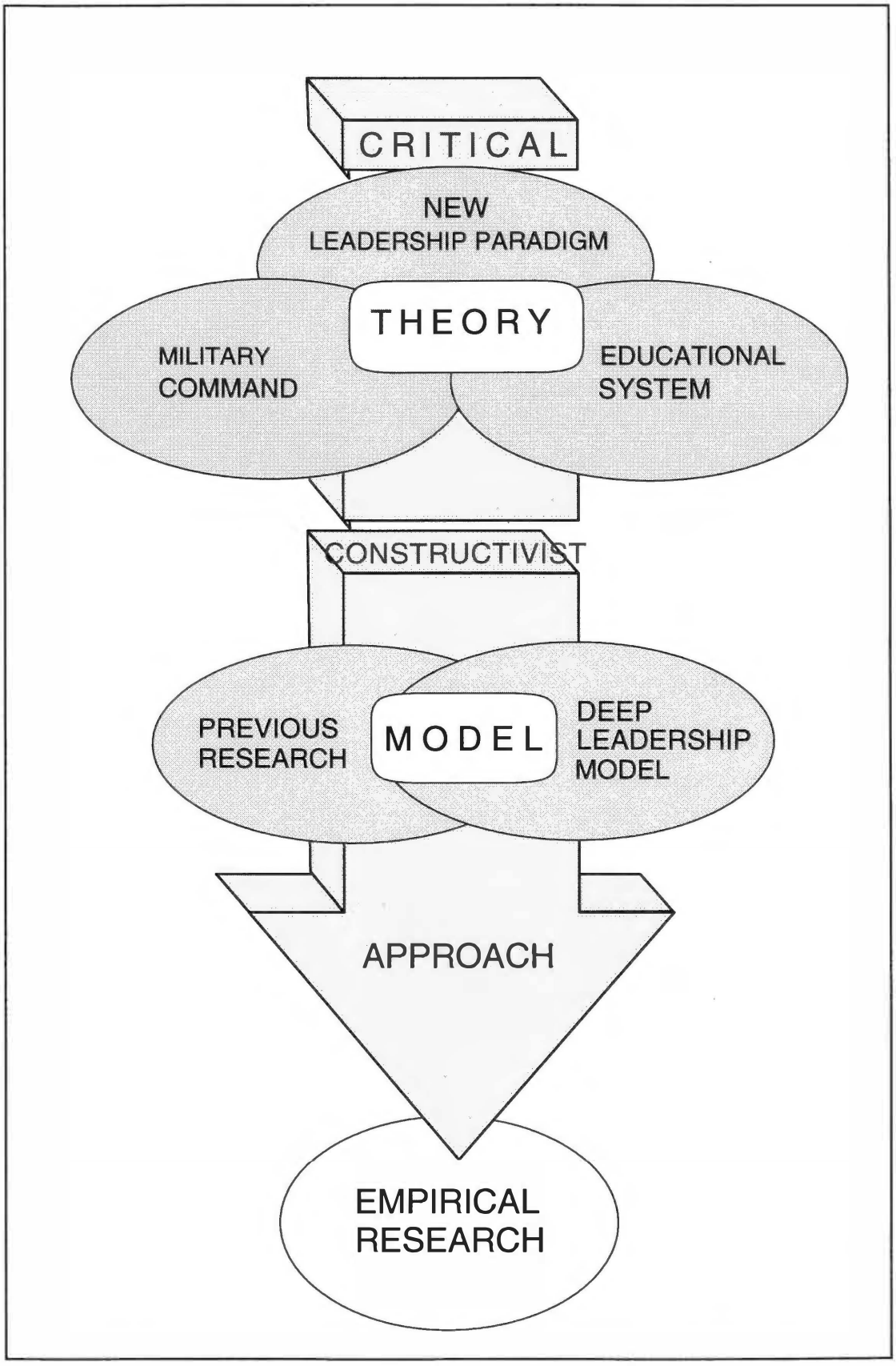


Figure 2. The structure of the study.

In the third chapter I will present in summarized form the general foundation on which my research is theoretically based. I will begin with the definition of the concept of paradigm. I will deal with the new paradigm of leadership from the viewpoint of metascience and in

this context I will define those basic assumptions that the Defence Forces' new leadership training program is based on in practice. Working inside the concept of paradigm, I will shortly introduce the methodical means and tools that I myself use in the empirical part of my study.

In the fourth chapter I will focus on the definition of military command. I seek a framework for interpretation from the latest international and the traditional Finnish research field on military command. I will separate from each other those main components that military command can be seen to consist of: the position of the military leader, decision-making and leadership behavior. I will examine these interactive sub-concepts through various operating environments. My approach is such that the definition of concepts comes near generalization also from military command to the general concept of leadership in its broad sense.

In the fifth chapter I will form an entity from the basic assumptions of paradigm and the concept of military command. I will examine this entity as an educational system, referring to the volume of the leadership training of the (FDF) and its indirect impacts on the entire Finnish society. To this chapter I will include the definition of the most central operating concepts. I will also take a look at the paradoxes of leadership and leadership as an agent of change in an organization. The chapter also includes the basics of development as a leader, the evaluation of the effectiveness of leadership training and the continuous evaluation of the whole educational system.

The next two chapters of my study form their own entity, the common denominator of which is the *modeling of leadership behavior*. In the sixth chapter I will continue on the basis of the new paradigm of leadership the summarizing and evaluation of the international research on the modeling of leadership behavior. In this chapter I concentrate on the area of the scientific research of the school of transformational leadership, because it has the most significant points of contact to the conceptual and practical development of military command. I evaluate earlier research by creating justification for the structural formation of the deep leadership model and its empirical testing.

In the seventh chapter I will introduce the deep leadership model I have developed. I place the model in more extensive frameworks that support organizational needs and the development of the individual leader. I will describe the structure of the model and its

contents. I end this chapter with observations that have accumulated throughout the entire research project as well as criticism on the application of the model to the training of military command.

The third part of the research entity is formed by the *empirical study* directed at the deep leadership questionnaire and the testing of the model. In the eighth chapter I will present the research arrangement, the method of information collection and the hypotheses related to the data. I also describe the statistical characteristics of the statistical data I have collected. In the ninth chapter I will test the hypotheses I have set for the part of the behavioral dimensions and latent structure of the deep leadership model using confirmatory factor analysis and structural equation model. This chapter also includes the analysis of the validity of the empirical part of the study. In the analysis of the validity I will use other data collected with the deep leadership questionnaire. The Appendices of my research include the tables and reports needed for the most central statistical phases.

In the tenth chapter I will analyze leadership profiles contained in the data I have collected. I will attempt to form an overall view of the statistical behavior of the leadership profiles using cluster and regression analysis. I will supplement the analysis by examining individual leadership profiles with criteria that have formed during the earlier analysis of the data. The leadership profiles will be studied in the operating environment of military command and especially Finnish conscript training. As support for the interpretation of the profiles, I will include in the Appendix instructions for the interpretation of the deep leadership questionnaire, which functions as a practical example of the use of this central tool of leadership training in support for learning.

I will end my research with discussion in chapter 11. In the discussion I will join together the observations I have made in the entire research process and I will briefly introduce the most important results. In order to honor the paradigmatic approach I have chosen, the first part of discussion is built on the basic assumptions defined in the chapter 3. I will also take a look at further research relating to the leadership training of the FDF.

I recognize the problems brought on by the vastness of my study in relation to its scientific depth. Each chapter of my research could probably serve as an exhaustive framework for an independent study. According to my scientific view, the formation of theory is still one of the most important ideals of science: even though I am not capable of this, I do believe I am able to define for the training of military leaders such theoretical framework that

passes the critical scrutiny of the scientific community. Most importantly, the feedback information on the new leadership training of the FDF that has accumulated for several years and that is not included in this study shows the practical value and of feedback and its efficiency as the basic solution of training.

People have different preferences in the way they shape information. My personal orientation is strongly visual, as the many figures and pictorial presentations illustrate. The main purpose of the figures in the text is to help the reader to clarify the ideas and concepts in the way I see them.

One of the most obvious developmental need in applying quantitative methods worth mentioning here is the still unused potential of soft computing. Typically, the empirical research in the era of leadership (selection processes, analysis of leadership profiles, etc.) should turn to fuzzy systems, neural networks, probabilistic reasoning and evalutionary computing. Among other issues, some of the possibilities of soft computing will be covered in the chapter 11.

Thus I see my research as an entity, each part supporting the other elements (parts I, II, and III) and on the other hand creating the basis for lower-level analysis in the hierarchy of the tools of science. I consider the results of the empirical part of my work to be important, but personally I think that even more important is the development of the meta-science of leadership and the effectiveness of the leadership training in the training system of the FDF.

2. CRITICAL CONSTRUCTIVIST APPROACH

Social scientific knowledge is ultimately explanatory knowledge. The need of revealing the metascientific assumptions underlying this study, like the constructivist conception of learning, is not related to the purely theoretical interest. The most important challenge for the output of this study is to enhance the effectiveness and practical results of the contemporary leadership training in the FDF. However, it is not possible to deeply understand the mechanisms of learning and personal development without theoretical background. Understanding the nature, possibilities and also limitations of the constructivist conception of learning, people are able to reflect this knowledge to the practical implications of leadership training.

In order to approach the diversity of philosophies of methodology that now prevail within post-empiricist social science, some ordering is necessary. This ordering can be made in terms of the constructivist-realist debate. According to Delanty (1997, 110 - 112), it is no longer a question of the philosophy of language versus the philosophy of consciousness, the status of critique with respect to hermeneutics, understanding versus explanation, theory versus practice. Constructivism is a critical engagement with society and science and their systems of knowledge. The stress, in general, is on how social actors construct their reality and the implications that this has for social science. Constructivists maintain that social reality is not something outside the discourse of science but is partly constituted by science.

In constructivism, the subject is an active agent as opposed to the passive conception of subjectivity in the value-free social science of positivism and hermeneutics (Rauste von Wright & von Wright 1994, 121 - 123). The hermeneutical approach does involve a degree of constructivism in the sense that hermeneutical knowledge enhances self-understanding. Constructivism does not hold to the idealist thesis of epistemological idealism that reality is a creation of the mind, but that reality can only be known by our cognitive structures. Unfortunately, constructivists seem to be divided between those who adhere to the possibility of an emancipatory critique and those who, in adopting the autopoietic approach, defend the value-freedom of science as a closed system.

Realists, unlike constructivists, emphasize that realities underlying knowledge do exist. The new realism in contemporary social science is anti-positivist and post-empiricist, wanting to hold on to the possibility of naturalism. Realism attempts to integrate three

methodologies: the possibility of causal explanation, having also a critical dimension and accepting the hermeneutic notion of social reality as being communicatively constructed. (Delanty 1997, 127 - 130.)

It would even appear that the real differences lie within constructivism rather than between constructivism and realism. The basic social scientific approach in this study is critical constructivism, which does mean an integration of contructivism and realism. These two sides can in fact be interpreted in a reconcilable fashion. In short, the fact that knowledge is socially constructed also means that more valid knowledge is socially possible. The recovery of the social bases of knowledge is not at all a contradiction to the concept of objectivity (Longino 1990, 81 - 82).

2.1 The constructivist conception of learning

The principle characteristic of constructivism is in its view that knowledge, both everyday and scientific, is a construction shaped by its context. David Kolb (1984) has studied experiential learning theory and process. In practical terms, he is one of the early constructivists, as he defines:

> *"Learning is the process whereby knowledge is created through the transformation of experience"* (Kolb 1984, 38).

Analysis of this definition by Kolb leads to following critical aspects of the learning process:

- the process emphasizes adaptation and learning as opposed to content or outcomes,
- knowledge is a transformation process, being continuously created and recreated, not an independent entity to be acquired or transmitted,
- learning transforms experience in both its objective and subjective forms.

The concept of learning can mean the basic assumptions made about the nature of the learning process, or the scheme formed at individual level about learning that directs the activities of a teacher and an educator. A dichotomic (paradigmatic) division into concepts of learning is based on either empirical-behavioristic or cognitive-constructive approach. Furthermore, a humanist concept of learning, among others, can be distinguished. It emphasizes in particular the importance of experiential learning.

To understand learning we must understand the nature of knowledge, and vice versa. As a matter of fact, conceptions of learning and knowledge are very hard to separate from each other, when the research is based on a constructivist approach. Philip Candy (1989, 98) reflects the conceptual assimilation when he presents the following assumptions of constructivist thought:

- the “subjects” of research should be considered as “knowing” beings,
- human beings can attend to complex communications and organize complexity rapidly,
- human interactions are based on intricate social roles, the rules governing which are often implicit,
- locus of control resides within the subjects themselves, and complex behavior is constructed purposefully,
- forms of negotiated understanding are integrally connected with other human activities and
- people participate in the construction of reality.

The idea of transformation of experience and knowledge, presented by Kolb and Candy, has been developed further by Mezirow (1991). Mezirow presents a new way of approaching the learning of adults. He describes the processes through which an adult can free himself of restraining ideologies, ways to observe things and psychological obstacles. He also offers an inside view of the skill of teaching adults, in which the reflecting of the teacher and the understanding of the learner's background have great importance.

According to Mezirow, the theories concerning the learning of adults have lacked a central element - *meaning perspective* - and interpretation on how the meaning perspectives are constructed, evaluated and redesigned. He thinks a theory of transformative learning is needed to explain how an adult learner gives meanings to his own experiences, how he structurally constructs his experiences, designs meanings for things and solves conflicts of meaning. These issues can be understood only in the framework of adult development and social objectives. Mezirow also uses the concept of situational learning. By this he means the change that takes place in our way of interpreting situations. It includes giving value to phenomena that occur in different situations and choice-based decision-making that occurs as a result. In these processes we can further develop our ability to deal with our experiences so that the meanings we give to them function even better in relation to our operating environment.

In his theory Mezirow examines two important issues:

1. How an adult can free himself of established models of thinking and thus function and renew his own learning - the question is therefore about change in its original meaning.
2. The objective of change are methods that aim for self-reflection and transformative learning.

The achievement of the objectives of transformative learning should be measured by comparing the students' original structures of meaning to the structures of meaning that have changed as a result of learning.The transformation theory is based on specific constructivist assumptions. A conviction is that meaning exists within ourselves rather than in external forms such as books and that the personal meanings that we attribute to our experience are acquired and validated through human interaction and communication.

Mezirow (1991, 70 - 94) differentiates three major aspects of learning:

- *instrumental learning*: to control and manipulate the environment,
- *communicative learning*: to understand the meaning of what is being communicated and
- *emansipatory or reflective learning*: to understand oneself and one´s perspectives.

Reflection is the central dynamic in intentional learning, problem solving, and validity testing through rational discourse. Although the transformation of *meaning schemes* (specific beliefs, attitudes, and emotional reactions) through reflection is an everyday occurrence, it does not necessarily involve self-reflection. We often merely correct our interpretations. Instead, the transformation of *meaning perspectives* always involves critical reflection:

> *"Perspective transformation is the process of becoming critically aware of how and why our assumptions have come to constrain the way we perceive, understand, and feel about our world; changing these structures of habitual expectation to make possible a more inclusive, discriminating, and integrative perspective; and, finally, making choices or otherwise acting upon these new understandings"* (Mezirow 1991, 167).

In the application of the constructive conception of learning, the pair of concepts *meaning perspective - self-directedness* becomes a metascientific watershed. It is possible to study how individual meanings, schemes and perspectives of meaning are constructed from observations and experiences. It is also possible to study how on the basis of self-directing an individual can direct the construction of reality in himself. *An entirely different issue is what is natural and even possible to humans*. This belongs to the philosophical basic questions in both education and leadership.

The latter concept, self-directedness, refers to an ideal view of human beings that requires a certain viewpoint in the philosophy of science: a positive and growth-emphasizing perception of humans. In fact, this kind of perception is one of the basic components of the new leadership training program. The basic training material for everyone in the FDF who is to be trained a leader deals with the human characterization through three-component division into rational, control-emphasizing and growth-emphasizing characterization by Ruohotie (1995).

The constructive conception of learning sets new requirements for any organization or training program applying these principles. Constructive learning process is tied to the respective environment and culture. The quality of social interaction in learning process contributes to the process in which the individual meaning perspectives are constructed. According to Rauste-von Wright and von Wright (1994), educational planning should cover also the conditions under which the constructive conception of learning can be applied as a function of change in individual meaning perspectives.

The basic assumptions of the constructivist approach emphasize three concepts. *Constructivity* means that knowledge and cognitive strategies are constructed by the learner, and that learning involves qualitative restructuring and modification of schemata. *Active epistemology* refers specifically to the belief that learners should be seen as active, intentional individuals who are primarily responsible for their own learning. *Mental representation* is related to problem-solving tasks, and is believed to reflect the idea that the manner in which knowledge is represented also determines understanding. (Lonka 1997, 20.)

Reynolds, Sinatra and Jetton (1996) have reviewed the development of the constructive concept of learning. They analyze five different approaches to understanding knowledge acquisition and representation. These approaches are behaviorism, schema theory, social

perspective theories, connectionism, and situated cognition. These approaches are described as lying on a continuum running from an experience-centered view of knowledge acquisition to a mind-centered view, with a more interactive view in the center. (Reynolds et al 1996, 94.) As presented in Figure 3, I prefer to visualize these approaches in another form.

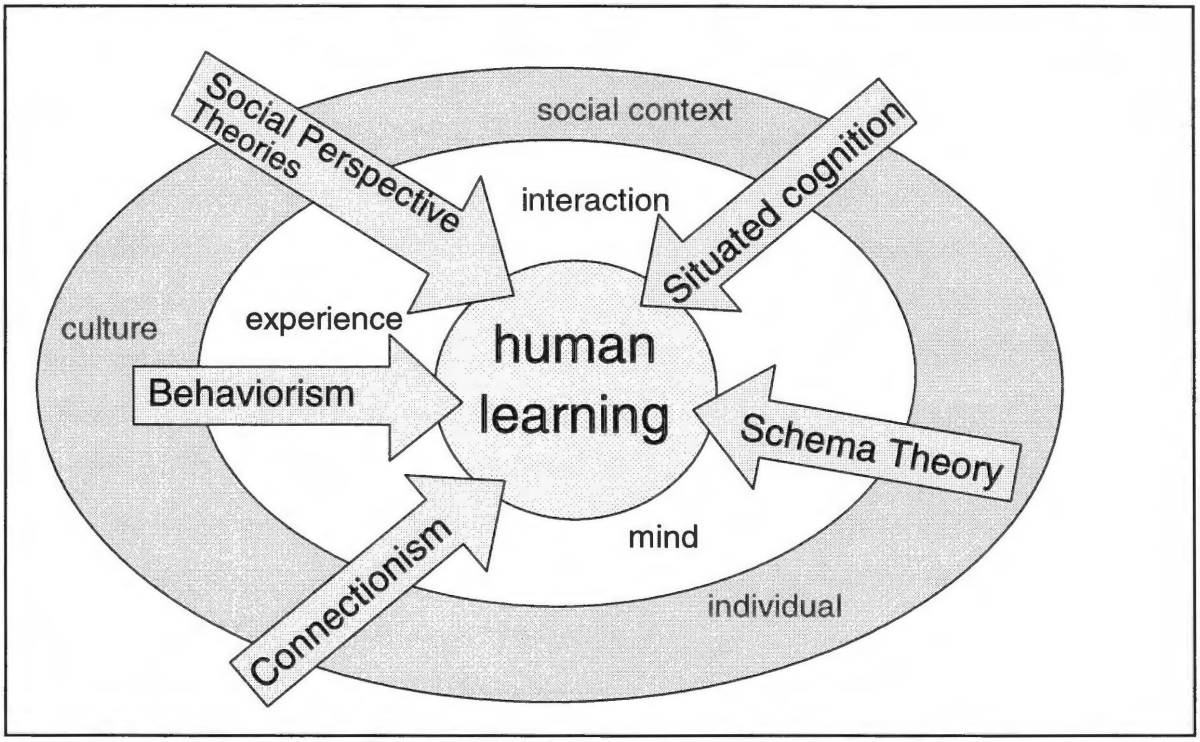


Figure 3. Five approaches to the concept of human learning.

The philosophical question of the origin of knowledge is not addressed in this study. As Lonka (1997) notices, there has recently been a debate among educational psychologists about the notion of constructivism. This debate centers around the nature of knowledge in the philosophical sense, that is, whether we can speak of "absolute" knowledge independent of human construction. In my study, constructivity will be approached from an educational perspective. From the leadership point of view the emphasis, in general, is on how leaders and followers construct their reality and the implications that this has concerning research and learning for leadership.

Each of the approaches presented in Figure 3 has definite strengths and has illuminated different aspects of human cognitive activity. The behaviorist perspective provides many insights concerning the acquisition of lower-order skills and the control of human behavior. The problem is that there is no room for any organizing or framing function of the mind in this approach. Thus, behaviorism offers systematic tools for planning and managing education (Heinonen 1989, 70 - 73), which may be one reason for its success.

Connectionists model neurona processes that allow insight into complex processes such as pattern recognition. Connectionism has similarities with classical associationism: back propagation represents an additional, internal process that goes beyond the simple relation of sensory experiences. Associations can be formed between units based on experience or on the propagation of activity through the network (Saariluoma 1992, 25 - 30). Connectionism is associationism with an intelligent face.

Social perspective theories bring the entire social environment, including culture and society, into the center of the cognitive equation. Theorists in social constructivism whose notions of knowledge are consistent with the early scholars, such as Vygotsky and Mead, suggest that the mechanisms of individual thought are first engaged through interaction with others and then become internalized. The process of internalization has played a much less significant role in the modern research agenda in comparison to that of the sociocultural context. In the theory of cultural learning by Kruger and Tomasello (1996) the importance of social cognition is emphasized. In cultural learning the child does not learn from the adult´s actions, but the child learns through the adult´s perspective in a truly intersubjective fashion. The theory is based on understanding others as intentional, mental and reflective agents. The three types of learning are imitative, instructed and collaborative. (Kruger & Tomasello 1996, 369 - 372.)

Situated cognition is relatively recent theory that attemps to account for how one learns in a conceptual environment. Theory notes the importance of close interaction between the environment and the cognitive agent and the importance of mental models in problem-solving situations. Situated cognition emphasizes both the processes that occur in the mind, as well as the affordances within the environment that contribute to the formation of mental models. The situation and the frequency of engagement in the situation as variables in knowledge acquisition are seen to be important.

Schema theory emphasizes the role of the mind and how knowledge interacts with incoming information. Schema theory allows the mind a greater role than other modern theories of knowledge acquisition. The mind, in the form of schemata, allows an individual´s knowledge to interact with incoming information to form new interpretations. The role of experience is acknowledged as well, because it provides the raw materials from which the mind forms schemata. The schema theory is interactive, but the emphasis is on the mind and internal processes of information representation, organization, and framing (Rauste-von Wright & von Wright 1994, 15 - 19).

As illustrated in Figure 3, the phenomenon of human learning can be approached from many conceptual directions, with number of research methods. The question is not, what is right or wrong. The question is, are we able to constructed a synthetizising framework in order to utilize all of these theoretical approaches. This is the core idea of the critical constructivist approach:

> *"..although each of these theories has merit in explaining certain aspects of knowledge acquisition, no approach adequately addresses the issues of consciousness, self-awareness, and self-reflection....what is required is a conception that embodies the sophistication of the computer metaphor with the added ability to evolve, feel, and adapt - in short, a biological metaphor".* (Reynolds et al 1996, 93.)

According to the critical constructivist concept of learning, even one simple concept, phenomenon or thing can be interpreted, analyzed and understood in many different ways and this is what happens in connection to learning. When studying the results of learning, one should concentrate on finding out what kind of interpretations have been taken in. Also, learning as well as teaching is always connected to the environment it takes place in (Patrikainen 1997, 256). This environment is an entire context from micro level to macro level: from the level of a single emotion, situation and a choice of words through social interaction to a wider cultural context. Rauste-von Wright and von Wright define:

> *"Learning is a self-centered process in which the learner selects, interprets and analyzes information based on earlier information and experiences. This process has always been connected to the situation and culture. The interactive process and the schemes of the learner form the basis of new structures of meaning*". (Rauste-von Wright & von Wright 1994, 15.)

Purposeful learning, i.e. learning to learn, is a skill that must be developed alongside "normal" learning. Because developing as a leader is a comprehensive growth process, the emotional dimension of an individual's personality has to be fully taken into consideration in research. In addition to metacognitive capabilities, a leader absolutely needs meta-affective capabilities as well. Further on, everyone can develop his/her skills of learning and thinking. The best learning methods are usually simple and on the whole they share one common feature: they encourage the use of all areas of intelligence as well as all senses to speed up learning. Looking at social change, many say that it is

increasingly important to understand and control *how* to learn, rather than what to learn. (Dryden & Vos 1997, 8 - 12.)

Today among the central questions of research is the interaction between a student's skill of conceptual thinking and learning behavior. In her study, Venkula (1988) ends up analyzing the model of the cyclic development of activity, knowledge and attitudes. By this she means that the said dimensions and above all the development of an individual in these areas is a complex cyclic process in which factors constantly influence each other. For example, an individual's own activity and the feedback he receives on it have an effect on the individual's thoughts and the capabilities of conceptual thinking in a process-like manner. Venkula writes:

> "*As a result of experiencing competence that occurs with actions, skills as well as attitudes and knowledge change*" (Venkula 1988, 224).

The critical constructivist approach to learning in the context of leadership training emphasizes, that the theoretical framework has to include all the approaches presented in Figure 3. Beyond this, the framework should consider carefully the affective dimension of human functions as a part of all learning in leadership.

2.2 Constructivist approach to leadership training

In this study, one of the basic theoretical questions is*: how does learning lead to change and personal development in the era of leadership*? According to Mezirow (1991), an essential point is that transformation can lead developmentally toward a more inclusive, differentiated, permeable, and integrated perspective and that, insofar as it is possible, all people naturally move toward such an orientation. This is what development means in adulthood. It should be clear that a strong case can be made for calling perspective transformation the central process of adult development.

According to Zorn (1992), is it possible to integrate transformational-transactional leadership theory to constructivism. Transactional leadership theories emphasize the exchange, or transaction, of rewards for effort as the key mechanism in influencing and motivating followers resulting "first order changes". Second order changes - revolutionary changes in attitudes, values, motivation, and beliefs - result only from transformational leadership. These theories provide a framework for recognizing multiple mechanisms

through which leaders influence their followers. On the other hand, constructivist research has sought to identify the constituent characteristics involved in the development of communicative competence. These characteristics are psychological, social cognitive, behavioral and message productional.

In his empirical research, Zorn (1992) ends up with the following results and conclusions. Moderate association between construct system development and transformational leadership was found. Cognitive differentiation was significantly correlated with three of four transformational factors and with the overall transformational scores. Construct system development is an individual difference variable that deserves added attention, because it seems to have significant potential in explaining leadership processes. Also other researchers like Kuhnert and Lewis have argued that the development of an advanced cognitive system for construing social situations may underlie the ability to use transformational leadership. Later on, based on the constructivist approach to leadership, Zorn and Violanti (1993) review some leadership measurement instruments for classroom use. They notice that leadership measurement instruments are tools for individual construct system development:

> *"By using leadership instruments as a pedagogical device in the communication classroom, the meaning of leadership concepts and the strengths and weaknesses of each conceptual framework become more tangible for students. Also, these instruments provide a valuable opportunity to make leadership concepts more meaningful for students..".* (Zorn & Violanti 1993, 70.)

Philip Candy (1989, 95 - 99) argues that the given forms of understanding depend on the vicissitudes of social processes, not on the empirical validity of the perspective. Commonly accepted categories or understandings are socially constructed, not derived from observation. As supposed in the constructivist theory, construction occurs within a context that influences people. Construction is a constant activity that focuses on change and novelty rather than fixed conditions. These ideas also support the need to move from "first order change" transactional leadership theories (which include situational theories) towards more constructional, transformational leadership theory (Bryman 1992, 8 - 11).

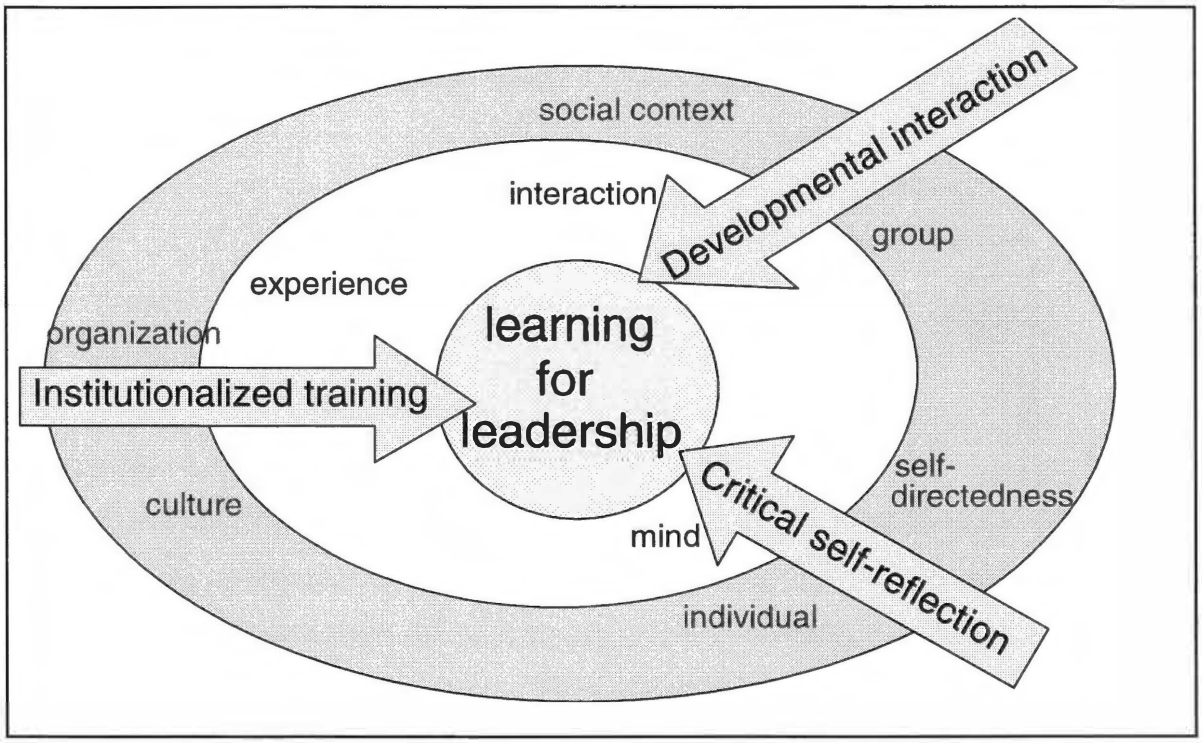


Figure 4. Critical constructivist approach to learning for leadership.

In Figure 4 the main approaches of knowledge acquisition and representation are applied to learning for leadership. In this context, the critical constructivist approach emphasizes that a developmental synthesis of these approaches is required: all of them are needed. At individual level, learning stems from mind-centered concepts like self-diredtedness and critical self-reflection. At group level, learning is based on developmental interaction in a social context. At organizational level, learning is supported by institutionalized training in a cultural framework.

When analyzing the opportunities and challenges of transformational leadership training, Burns (1978) starts off from the concepts of leadership and education. He draws a parallel between these concepts and questions in this context the behaviorist tradition of education. With his study Burns is actually creating a foundation for the new paradigm of leadership, but also for the constructive concept of learning. He writes:

> "*...it is the total learning process... conducted by both teachers and learners, engaging with the total environment, and involving influence over persons' selves and their opportunities and destinies, not simply their minds. Persons are taught by shared experiences and interacting motivations within identifiable physical, psychological, and socio-political environments. Ultimately education and leadership shade into each other to become almost*

> *inseparable, but only when both are defined as the reciprocal raising of levels of motivation rather than indoctrination or coercion.*" (Burns 1978, 448.)

As his conclusions Burns suggests that in democratic systems leadership training must have a mind-centered constructive basis. He questions, for example, learning from a model because it can lead to the loss of flexibility and situational sensitivity. Learning leadership starts from every individual himself, from the recognition, realization and voluntary development of one's own values and personal characteristics. Suonperä (1993) deals with the modern concept of learning. Of the connection between teaching and leadership he writes:

> "...*when moved to the training environment, interaction includes also a thought of leadership... the successful progression of a teaching-learning event requires leadership that is in accordance with the situation. The question is above all about the directing of people's activities according to the demands of the objectives... The nature of a teaching event therefore includes leadership as well*". (Suonperä 1993, 18 - 19.)

From the viewpoint of a professional leader, a researcher who has worked as a military leader, instructor and a teacher, it is easy to agree with Suonperä's thoughts. *Speaking of people, where is the line between leadership, training and teaching?* In the application of the leadership training program the premise has been the common characteristics of training and leadership, not their differences. The concept of training, that is closely related to the concept of leadership, also ties these concepts together. It has been fruitful to study this field of activity from a viewpoint that emphasizes the *shared values, principles, models and functional solutions of these areas.*

The new paradigm of leadership integrates many of the mentioned congruencies, because one of the central duties of a leader is considered to be the development of the skills and capabilities of his subordinates. In practice this means learning, training and coaching at work. Empowerment is a concept used in this context. Bass (1998a) reviews a research, in which a corps commander restructured the Corps through much delegation of authority, responsibility, and accountability. The respective effects were noted in just a few months after the changeover, including increased combat effectiveness of battalions, higher standards of discipline, stronger unit identity (second order cohesion), caring leadership, improved teamwork, and military professionalism. (Bass 1998a, 138 - 148.)

Characteristic to the activities of a military leader is the strong overlapping of the roles of a trainer and a leader, especially in peace time service. The development of training has from this viewpoint required the standardization of the basic structures and concepts of leadership and training. I will return to the contents of military pedagogy and the practical methods applied in leadership training in the fifth chapter of this research.

2.3 Constructivist framework for leadership behavior

According to Burns (1978), teaching of leadership as opposed to manipulation can be seen in following forms of interaction:

- teachers treat the students as joint seekers of truth and of mutual actualization,
- moral values are defined through situations that pose hard moral choices, thus encouraging conflict and debate,
- teachers seek to help students rise to higher stages of moral reasoning and hence to higher levels of principled judgment,
- throughout, teachers provide a social and intellectual environment in which students can learn. (Burns 1978, 449.)

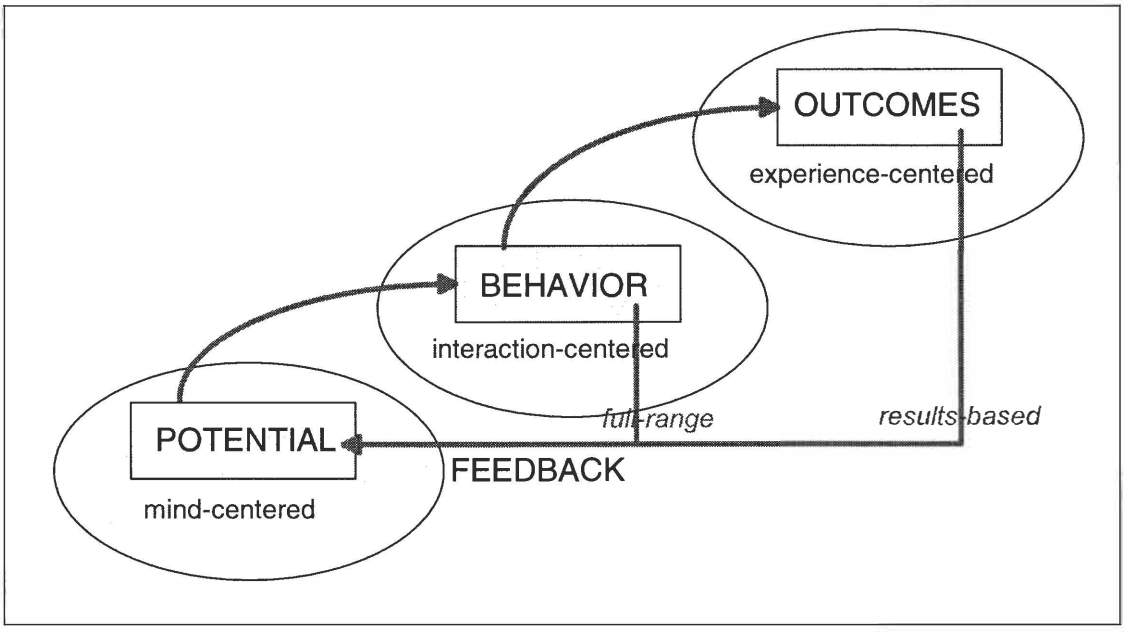


Figure 5. Constructivist framework for leadership behavior.

None of the above-mentioned requirements favors "permissiveness" or laissez-faire in education; rather, students are helped to respect the fairness, equity, honesty, responsibility, and justice for which they speak. Also teaching and learning specific skills

remains important, because these basic skills are vital to a person´s self-esteem and self-confidence.

Figure 5 manifests in more operating concepts how I interpret the critical constructivist concept of learning in the framework of leadership behavior. According to the new paradigm of leadership, the study of leadership must be increasingly directed towards the study of the leader's real activities as a basis for learning. This view is based on a realistic conception about the actual opportunities of training in relation to an individual's attitude towards self-development.

Leadership behavior is the leader's activities that can be observed and assessed from the outside. Leadership behavior can be practiced already at the training phase. However, the potential of the leader, on which behavior is based, can be influenced only indirectly through training or social interaction. In the end, the leader himself is responsible for the development of the potential of his leadership capabilities. The outcomes can be assessed in many ways, but development in any sense does not really take place without feedback information.

2.3.1 The potential of the leader

The potential of the leader can be approached from many viewpoints, because there are several theories and much information on the overall personality of a human being and its development. Here I will present only a brief description of a view of the potential of the leader and its components; the view is in accordance with the new paradigm of leadership. In the theoretical framework, potential is a mind-centered concept.

According to Heikkurinen (1994), a human being always functions in a physical environment that manifests itself to the human being as conceptions (schemes). Schemes linked to each other form extensive interpretative entities that can be called meaning perspectives. This personal manifestation is called subjective consciousness that only the person in question can be aware of. Consciousness develops as a person's age increases, functioning as the foundation for that person's conscious processes. The basic elements of subjective consciousness are thinking, feeling and wanting.

Thinking forms the cognitive foundation of our personality, while feeling forms the affective foundation. Wanting is formed as a combination of thinking, feeling, human needs and

values, and motivation. The said parts thus overlap and form the foundation for an individual's behavior. Therefore they function as directors of human interaction, i.e. voluntary behavior. Cognitivism concentrates on cognitive processes, while critical constructivism emphasizes the entity and development of subjective consciousness. The concept of emotional intelligence brought forth in the 1990s by Goleman (1995), for example, is connected to an individual's opportunities to voluntarily direct also his behavior that is based on emotions.

The premise of an individual's potential is created as a result of the interaction between his genes and his environment. Education, leadership training and in the end even one's own leadership experiences shape the potential to lead. Shaping means the changes in the needs, desires, values, attitudes and motivation of the individual brought on by growth and conscious development. From a viewpoint that emphasizes the entity of an individual's personality, potential can be seen as a balance between the individual's subjective consciousness and an individual development process related to it. The balance is a dynamic phenomenon that is based on the individual's healthy self-confidence and self-directiveness. The goal of the individual development process is to raise the balance in relation to the individual's values and needs. As a result of the process, the individual's activities will be tuned more and more strongly through internal rewards and needs for growth. Potential is thus more primitive than behavior and can be defined as follows:

> *"Potential is an extensive behavioral capacity in an individual's personality at a given time. Potential is based on the genotype of personality as well as that what is learned. Potential is closely connected to the energy mechanisms of personality. The central areas of potential are maturation and learning. The use of the capacity of the potential can be increased with educational means".* (Niskanen 1991, 35.)

Knowledge and its control, i.e. cognitive processes, are not separate parts of human activity, but they are tied to the entity of human personality. Positive feedback related to development as a leader encourages individuals towards more and more active duties. Experiencing competence that is related to the development of leadership behavior influences the development of personal capabilities, because changes take place also among values, appreciations and attitudes. Experiencing competence in military leadership usually occurs when one sees and experiences that his troops have learned

something new or performed well at a given task. Acquiring experiences of competence requires an opportunity for independent activity at all levels. In the everyday routines of military training, this often means risk-taking as well as failures. However, it is necessary from the viewpoint of the growth of young military leaders. Furthermore, the probability of failure can be reduced in conscript training, among other things, by coaching (Toiskallio 1998, 29).

Professional skills, or mastering the practical information needed in a certain post, demonstrating the required skills and efficient decision-making related to them, create a foundation for the formation of self-confidence at individual level. The self-confidence of a leader has a significant connection to the comprehensive capability to further develop as a leader. Bandura (1998) analyzes the concept of self-efficacy quite profoundly. From the viewpoint of leadership training, an important observation is that successful trainers who can raise the self-efficacy of their trainees concentrate on the following things: the development of basic skills, building trust in success and getting over failures quickly. Goals have to be set so high that they will not be achieved without effort.

2.3.2 Leadership behavior

In the theoretical framework, leadership behavior is interaction-centered concept. As a metaphor, the concept of leadership behavior is a door from the room of real-life observations to the room of conceptualizing and modeling leadership. Leadership behavior is the active, external and operating dimension of leadership:

> *Leadership behavior is intentional interaction among humans that takes place in a certain group. The interaction has to be such that it improves the performance of the group and maintains constant development in relation to solving surfacing problems and achieving set goals. Leadership behavior is based on the personal potential of the leader and its efficiency is affected by the operating environment, situational factors and the goals set for activities.*

The concept of leadership behavior is *stipulative*. The purpose of the analysis of the concept is to clarify the term that is today used in more and more contexts but its exact contents are not often defined. The concept is also more operating than theoretical. Through the definition above, a conscious effort is made to seek a new approach and line of action in relation to leadership training that really develops the skills of an individual.

Intentionality is one of the key concepts in the era of phenomenology, created by Brentano and developed further by Husserl and Sartre, who sees intentionality as a basic structure of all consciousness (Niiniluoto & Saarinen 1989, 114). From the philosophical point of view, every intention has an certain object. This is also the basic assumption underlying my definition of leadership behavior. Intentionality refers to the relationship between the goals of group activities and the respective leadership behavior (Burns 1978, 442). Observation is a tool of intentionality. (Gollwitzer 1993, 141 - 185.) Through his observations, an individual leader constitutes perceptions, meaning perspectives and schemas and relates them to the more common goals of current activities. In general, leadership behavior must be intentional and purposeful in the context of military leadership.

In practise*, interaction* means the need of interpersonal social skills, the premise of which is the understanding of the before-described human processes and the recognition of them in other people. The development of interactive skills requires the development of emotional awareness and the control of feelings as well as taking advantage of the energy of feelings. Empathy is manifested in interactive relationships as the ability to take into consideration the views and feelings of other people and the ability to listen to them. In leadership behavior, interactive skills manifest themselves as:

- the ability to analyze and understand human relationships,
- the ability to solve conflicts and negotiate,
- the ability to solve problems of human relationships,
- self-confidence and communicative skills,
- friendliness and sociability,
- caring for others,
- the increase of the harmony and unity of a group,
- the sharing of attention, cooperation and helpfulness, and
- democracy in cooperative relationships. (Goleman 1995, 303 - 304.)

It has been noted that leaders who have good interactive skills lean more on trust and the sharing of visions in their leadership rather than on the formal exercise of power. Involving subordinates in the preparations for decision-making, for example, does not take place so that the subordinates would be happier, but because this way they commit themselves better to tasks. For the military, the ability to negotiate is one of the must powerful skills in many tasks (Bass 1998a, 129 - 131.) This is about the foundation of leadership behavior, i.e. the efficient relationship between transformational and transactional leadership.

According to a theory presented by Gardner, interpersonal skills are based on one area of intelligence, in which case their background is at least partly genetic. Goleman (1995) presents Gardner's theory of intelligence and its factors. Gardner claims that there are at least seven types of intelligence, when normal intelligence tests typically measure only three types - verbal, mathematical and spatial perceiving. Leadership-wise two other types of intelligence, inter- and intrapersonal, are crucial. Intrapersonal intelligence creates a foundation for self-knowledge and self-awareness. Interpersonal intelligence creates a foundation for interactive skills. Both areas are central from the viewpoint of the new paradigm of leadership. This view has already been taken into consideration for example in the development of leader selection in the FDF.

Burns (1978, 89 - 91) ponders on the essence of leadership and defines borderlines for interaction especially in superior-subordinate -relationships. Functionally superiors and subordinates form an inseparable entity of interaction, but their views are nevertheless different. A leader must be the initiator in the superior-subordinate -relationship and he must create preconditions for continuous communication. The leader must also be skilled at the evaluation of the motives and reactions of people and in the recognition of personality's sources of power. The leader thus carries the responsibility for the maintenance of interaction, coupled with the sense of purpose (intention). The most efficient leader achieves his goals through the needs, motives and goals of his subordinates.

For a leader the central groups of people are the subordinates, peers, superior and representatives of interest groups. Leadership must be examined in relation to other people, or more precisely in relation to their perceptions and meaning perspectives. Each individual's perception of his leader and the individual's relationship to his leader is in the background of all activity. With external means of motivation, it is possible to get organizations to function on their routines, but efficiency or change created by real leadership is not achieved unless people are ready to commit themselves to their operating environment and its goals. (Bass 1998a, 20 - 22.) Meaning perspectives and interpretations that are based on individuals' own observations become decisive. In this entity, subordinates' conception of their leader is much more decisive than, say, the leader's self-evaluation.

The effect of operating environment and situational factors on leadership has been considered so important that entire models of leadership have been developed from this

perspective. I will deal in more detail with the concept of operating environment in the context of military command in chapter 4. The best known situational approach to leadership behavior is probably the model of situational leadership developed by Hersey and Blanchard already in 1969. The main idea of the model is to adjust the style of leadership according to the situation, and two significant factors are seen to influence the situation: the willingness and ability of subordinates. By cross tabulating the two main factors, a matrix is obtained and it defines the need for the four styles of leadership

1. Telling/defining.
2. Selling/clarifying.
3. Participating/involving.
4. Delegating/empowering. (Hersey et al 1996, 200 - 368.)

Studies have shown that successful leaders can adjust their leadership behavior to the demands of the situation. Guiding and delegating styles are seen as task-centric styles, while supportive and encouraging styles are seen as relationship/people -centric styles.

In the constructivist framework for leadership behavior I assume that situational and contextual factors always influence leadership behavior (interaction-centered approach). As such the basic idea of situational leadership is included in the new paradigm of leadership. For the research on leadership, the model of situational leadership simplifies phenomena and the relationships between them too strongly. The development of leadership behavior is continuous learning that stems from countless different situations. Mezirow (1991) writes about situational learning, referring to the change that occurs in the way we interpret situations. It includes giving value to phenomena occurring in different situations and decision-making that leans on options and is based on the different phenomena. Decisive from learning's point of view is our ability to consider our experiences, which then have connections to our self-esteem, self-confidence, and intentionality.

The goals of human activities are usually examined with the help of two attributes, contents and intensity. The contents of a goal are defined by its specificity and difficulty. The intensity of the goal is connected to mental processes. Commitment refers to how much an individual wants to pursue the goal in question, how important he considers the goal to be, how eager he is to pursue it and hold on to it despite obstacles and difficulties. The concept of self-efficiency is essentially connected to goals and achieving them.

Self-efficiency is a conception of one's performance abilities in a given task and it is defined by potential (Ruohotie 1995, 25 - 28).

Goals related to leadership behavior can be divided into internal and external ones. External goals are given to the leader or taken from the outside, and they regulate leadership behavior from the organization's viewpoint. It is then possible to speak of set goals. On the other hand, leadership behavior is also regulated by the individual's internal goals that function as a means of self-regulation and self-directiveness. The process of defining personal goals is very complex, because it is affected by situational factors and expectations. Leadership-wise it is advantageous to strive for a situation in which goals given from the outside (set by the organization) unite as much as possible with the goals that stem from the leader's internal processes (Bass 1998a, 11).

2.3.3 Leadership outcomes

In the theoretical framework, outcomes is experience-centered concept. With the help of the outcomes, it is possible to concretize the connection between leadership behavior and the effectiveness of group activities. High-quality study of leadership must apply qualitative research methods and above all produce information about the behavior of the leader in relation to the operating environment and the organizational outcomes. Measures of favourable outcomes for a group are always possible. Military organizations seek success in battle, increased combat readiness, increased troop reenlistments, or higher scores on training exercises. In any case, outcome measures relate directly to fundamental organizational objectives. (Clark & Clark 1996, 93 - 95.)

According to Burns (1978), there is only one view, conceptually simple but with difficult methods, on measuring leadership:

> *"Power and leadership are measured by the degree of production of intended effects"* (Burns 1978, 22).

The outcomes can be measured at different levels: at the level of an individual, the group and the entire organization. According to the chosen framework, there should be a systematic connection from the outcomes to both leadership behavior and the potential of the leader. The operating form of this connection is generally called *feedback.* The research of leadership effectiveness through its outcomes reduces conceptual problems

when leadership behavior, that produces desirable outcomes, can be defined and it can be measured. With research it is possible to find out what factors have the strongest connection to the outcomes.

Mutual trust and cohesion have been seen as key factors concerning the effectiveness of small units in the battlefield (Bass 1998a, 20). As a concept, building trust and confidence is one of the four cornerstones in the deep leadership model. Cohesion can be seen as an relevant outcome of excellent military leadership behavior, thus with some intervening variables. According to Harinen (1998), one of these intervening variables is a sosiological phenomenon of informal group norms.

In this context, the concept of military cohesion should include the point of view of shared goals which are congruent with the goals of the leaders and of the formal military organization. The following definition goes beyond the interpersonal attraction:

> *"Cohesion exists in a unit when the primary day-to-day goals of the individual soldier, of the small group with which he identifies, and of unit leaders are congruent - with each giving his primary loyalty to the group so that it trains and fights as a unit with all members willing to risk death to achieve a common objective"* (Harinen 1998, 3).

In the history of military leadership, there are lot of examples of unit cohesion that finally turns against the respective commander. As an outcome of excellent leadership behavior, cohesion must be defined as above. In this sense, cohesion is one of the most primary outcomes of military leadership, especially in the direct level of leadership.

For a military organization based on conscription, a central peace time result is *action competence* through military training considering both individual soldiers and units. The central latent outcome to be pursued is learning. Learning means that in the skills and knowledge as well as in the trainee's ways of perceiving and thinking fairly lasting changes take place in a desired, more developed direction. Training aims for deep learning. In order to clarify profound effects at individual level, it must be studied whether the military leader has created deep learning and phenomena related to it in his own troops (Toiskallio 1998, 15 - 17).

In the FDF the new leadership training program has widened the goal-setting of military training. The key outcome of peace time conscript training is a reservist with a positive attitude towards democratic values, national defence and the voluntary maintenance of his physical shape and his military skills. Reserve leaders should continue the purposeful development of their leadership behavior in the reserve as well. These outcomes have a notable temporal dimension, expanding the narrow view of actual training results in the era of values and attitudes. The overall measurement model of military training based on these ideas is still in the process.

In the empirical part of this research, the leadership behavior of an individual leader is measured through ratings by subordinate military personnel for research purposes by using the Deep Leadership Questionnaire (DLQ). When using the questionnaire as a tool for feedback, the leaders are encouraged to collect feedback also from peers and superiors, and to complete the process by a comparison of the external evaluation with an internal (self-assessment) evaluation. Based on several independent studies, there is a strong argument for going beyond self-reports and self-ratings (Bass & Avolio 1997, 11 - 12).

Nonetheless, the essence of leadership behavior is in the way other persons see and experience their own leader. The outcomes are measurable dimensions describing the effects of leadership behavior in a certain group and operating environment. The new paradigm of leadership has sharply increased the extent to which we are able to account for the impact of leadership on associates´ effort and performance as well as on group and organizational performance (Bass & Avolio 1997, 19).

2.3.4 Feedback

Feedback is an inseparable part of development as a leader, whether it is institutionally organized or stems from personal objectives. Learning requires information about the results of the activity. Experience as such does not guarantee learning. The feedback information is in this sense the main source of constructive conflict:

> *"Ultimately the moral legitimacy of transformational leadership, and to a lesser degree transactional leadership, is grounded in conscious choice among real alternatives. Hence leadership assumes competition and conflict, and brute power denies it."* (Burns 1978, 36.)

Development as a leader should be supported with an objective meter that reveals whether progress has been made in leadership behavior. Feedback can be produced with the "hard" result meters related to the productivity of the organization, or with the "soft" evaluation meters based on leadership behavior and its outcomes. (Clark & Clark 1996, 169 - 170.)

Neither can feedback be limited only to the analysis of the superior-subordinate -relationship. The operating environment must be comprehensively taken into consideration. This means obtaining feedback from peers, the superior and the key interest groups. The viewpoint of the analysis, or the relationship between individuals in the organization's hierarchy, again has an effect on those giving the feedback. When a subordinate assesses his leader as a superior, peers assess him more as a cooperating partner and superior as his own subordinate. This way an entity can be built from different sources of feedback and the entity significantly helps the leader to analyze his own leadership behavior and its effects on the surroundings. Analysis in itself is a demanding process that requires the ability to reflect. Reflecting leads to the increase of self-awareness. (Church & Waclawski, 1998.)

When purposefulness and task-orientation are systematically integrated into this individual process, *self-directedness* is being gradually approached. The goal of self-directedness is the transformation of one´s personal frame of reference, one´s meaning perspective, into a more authentic, integrated basis for interpretation and action. According to Mezirow (1991), one approaches this goal through a process consisting of critical consciousness, participation in discourse and reflected action.

A feedback system entity that is useful from an individual's point of view is called 360-degree feedback in general research literature. In the new leadership training program this principle is called *full range feedback.* Waldman, Atwater and Antonioni (1998) have studied feedback systems in different organizations and development projects. The basic function of full range feedback is the development of leadership in organizations; the development of organization culture to a more change-oriented direction may result, among other things. Because strong human reactions are always connected to the introduction of feedback systems, the scientists recommend that in the first phase feedback be used purely as a tool that supports the development of individuals.

The feedback systems directed at the individual are so effective that organizations can think about integrating the feedback directly to performance evaluations or even to salary bonuses. However, this is a procedure that researchers clearly warn about. People have to be given time to get to know the feedback system and accept it as a tool of individual development and the self-evaluation of units. If the evaluation of productivity is added to the feedback system, the original significance of the feedback (development based on self-evaluation) does not have room to occur and resistance to change easily grows too large. (Joronen 1993, 94 -98.)

Feedback may come from many sources and often the receiver of feedback quickly values the feedback as either positive or negative, based on his expectations. Valuing is based on the interpretation and the world of experiences of the receiver of the feedback, the individual. The first rule of functioning feedback is connected to valuing: whether the feedback is positive or negative, one has to be capable of receiving it. Whether the feedback leads to changes in leadership behavior, i.e. learning, is up to willpower, inclination, ability and courage. Feedback often causes a surge of emotion, influenced by the self-confidence of the receiver. The tolerance of criticism defines how strong and long this outburst is. (Pirnes, 1995.)

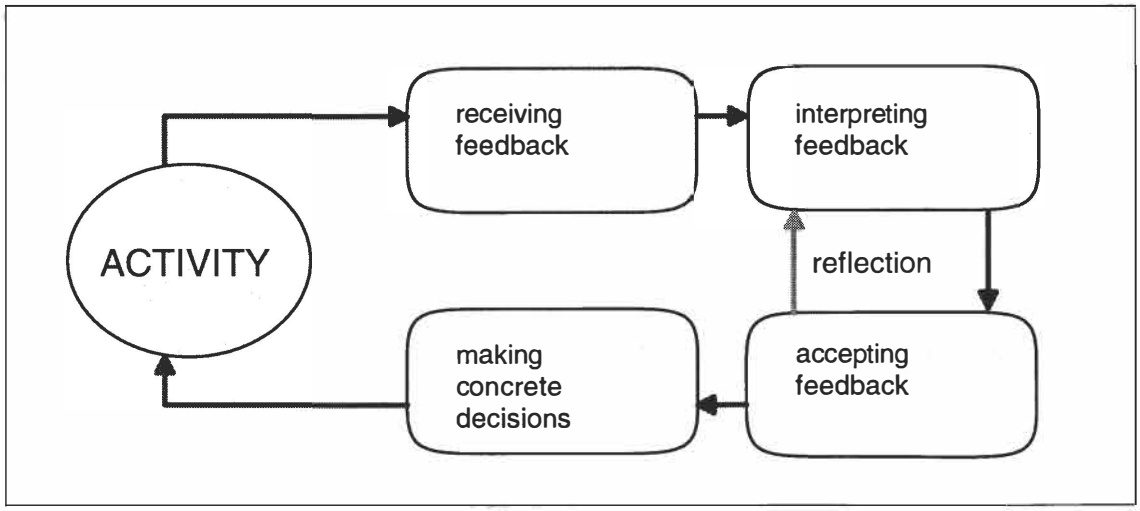


Figure 6. A simplified feedback process model.

Development-wise, subordinates are the most important source of feedback. Leaders receive positive feedback with no regard to the level of the subordinate, but it is easiest to accept negative feedback from a competent and active subordinate. The feedback system works when the superior makes it clear to his subordinates that he is open to feedback, and the subordinates give honest feedback without trying to ingratiate their superior.

Furthermore, the functioning of the feedback system can be disturbed by the fact that the views and conceptions of the leader and subordinates concerning the same issue can vary greatly, in which case a common conception about development needs is not reached.

The interpretation of feedback includes assessing and reflecting the reliability of the information the feedback contains, as Figure 6 shows. Reliability is strongly affected by the respondents' knowledge of what purpose the feedback they give is for. Research has shown that more than every third (35%) respondent changes his answers if the feedback is used for performance evaluations instead of personal development. Another factor with an effect on reliability is anonymous replying, which is seen to provide the most honest (therefore not the most objective) feedback. Furthermore, it must be ensured that the feedback is used to measure the right things in the right proportions. This requires the careful analysis of the duties of the leader and taking into consideration the complexity of the relations of influence. (Waldman et al, 1998.)

It is possible to make the following general observations from the research results related to the interpretation and acceptance of feedback:

- often feedback is not accepted or it is misunderstood,
- feedback has to be direct in order to be effective,
- positive feedback is recognized and remembered better than negative feedback,
- the recurrence of feedback enhances its effect,
- feedback is accepted better if it corresponds to the expectations of the receiver,
- feedback is accepted better when its source is considered reliable,
- an increase of feedback does not always improve performance, especially if the receiver's own ability to assess his own performance is not developed at the same time,
- feedback develops mainly that part of the performance that feedback is directed at and,
- people's attitudes towards feedback are individual. (Ruohotie 1990, 81 - 83.)

The attitudes towards feedback are thus individual. Understanding individuality in this context begins from the assessment of an individual's internal processes and the state of

balance related to them. A group and a community can through their culture and superiors support the exploitation of feedback, in which case it will be easier for an individual to form a positive approach on feedback. If feedback related to leadership behavior is used as a part of performance evaluations, the meters used should be clearly attached to the organization's goals, productivity and efficiency. This way the effect of human sources of error in evaluations is reduced. Leadership behavior is always multi-layered and multi-dimensional. The more multi-dimensional the feedback information is, the more credible and reliable is the image of leadership behavior. (Church & Waclawski, 1998.)

Increasing self-knowledge, which is related to leadership behavior, takes place in a process described above. Toiskallio (1998) defines that the self-awareness of a military leader is self-confidence and self-knowledge combined with the ability to act so that the individual himself takes responsibility for giving some thought to issues. People's task resolutions are the result of an entity of human processes, in which self-awareness functions as a kind of "cognitive conscience". The basic idea of various feedback systems and the entity they form is therefore to offer a tool for the reflective thinking and growing process of the leader. This is the premise of the development of leadership behavior. The full range feedback process model reflecting these ideas is shown in Figure 7.

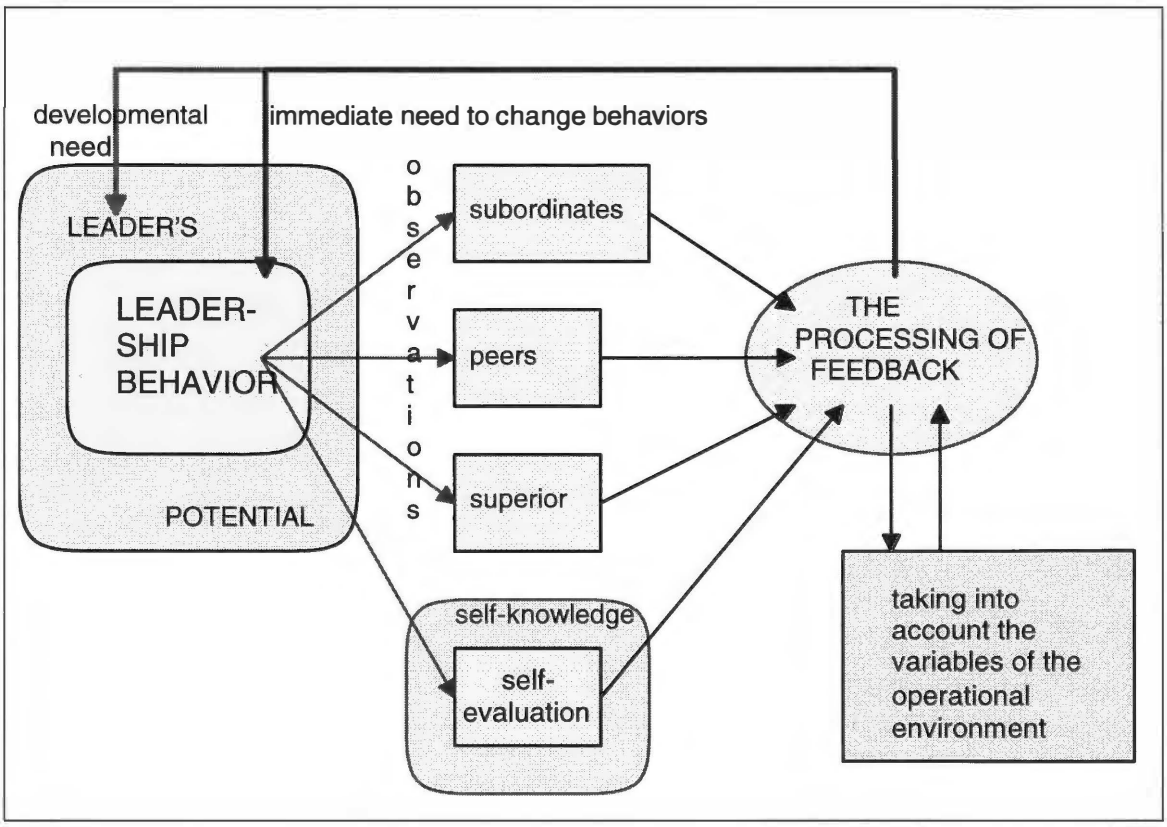


Figure 7. The full range feedback process model.

2.4 Conclusions

The critical constructivist approach penetrates this research; as mentioned, the purpose and motivation of my research stems from the need to enhance the military leadership training. This approach means that the ontological and epistemological assumptions of constructivist conception of learning are related to the theoretical basis of the new paradigm of leadership. It is possible, because the constructivist idea of human development is one of the meta-scientific cornerstones of the paradigm.

The standard of constructive conception of learning is high: as a process, it goes beyond quantitative increase in knowledge, memorizing, and even application. The value-based process of leadership training should lead to conceptual, qualitative changes in trainees´ meaning perspectives and constructive activity of the trainees. The final outcome of this kind of learning process is a life-long commitment to leadership development and personal growth.

The stipulative concept of leadership behavior is the main tool when interpreting the real-life observations about military leadership at the level of concepts and models. In this stage, there may some contemporary criticism concerning the concept of leadership behavior in an military organization. However, when proceeding, in chapter 4 I will analyze the concept of leadership behavior in the context of military command.

Because of certain differences in the English and Finnish languages, it is necessary to emphasize that military command is a higher-order concept. Military leadership is a sub-concept of military command, formulated from the point of view of effective leadership training. In my opinion, the critical constructivist approach is important in the research of leadership for several reasons:

1) critical constructivist approach unifies all the main learning theories this far and creates a comprehensive framework for effective leadership training;
2) through this approach, we can better understand and explain the mechanism of power and influence in human interaction, especially in leader-follower interaction;
3) through the constructivist conception of learning, people can better understand and develop the learning processes and methods in the era of leadership;

4) based on this approach, the respective leadership training programs have shown to be more effective than other comparable programs (Popper et al 1992; Bass 1998a; Avolio 1999) and
5) finally, we may be able to create foundation for a comprehensive theory of constructive leadership (Lambert et al, 1995).

I will review the new paradigm of leadership in the next chapter. Even if not mentioned clearly, in most of the studies employing the new paradigm of leadership, the constructivist conception of learning in the framework of social constructivism can be seen as underlying assumption in these studies (Juuti, 2001).

3. THE NEW PARADIGM OF LEADERSHIP

Behind the new leadership training program of the FDF is an internationally significant research trend that can be called the new paradigm of leadership. As a phenomenon, it has existed throughout human history. What is new is the modeling of the “best practices” of transformational leader, which offers a reliable framework for observing, measuring and conceptualizising leadership behavior. The paradigm does not revoke earlier research on leadership, instead the paradigm rises above it to combine different views. (Bass 1998a, 16 - 17.) The basic assumptions and theoretical background of the new leadership training program are difficult to perceive as a whole without knowledge of the concept of paradigm in its scientific meaning.

I will deal mainly with the most central school inside the new paradigm of leadership. The school functions in the area of transformational leadership research. The work of this scientific community has led to significant results in different parts of the world in the areas of both research and leadership training. In his book "Transformational Leadership" (1998a) Bass reports extensively on the latest empirical research on transformational leadership from all over the world. Bass also reports on qualitative research that supports the presumptions of the paradigm and its modeling. Qualitative research has been carried out by using, among other things, observational diaries and interviews as methods.

A significant contemporary source of information that also gives an overall picture of the respective research is the internet, where a notable amount (thousands) of the latest research can be found using "transformational leadership" as keywords.

The paradigmatic starting points of the new leadership training program of the FDF are mainly based on the results of the work of this scientific community led by professor Bernard M. Bass. An essential part of this scientific work are several joint research and training projects with the armed forces of the United States and Israel, among others. I will review a part of this research in the chapter 6, concentrating on the research made in military organizations.

3.1 Paradigm as a scientific concept

Thomas Kuhn (1970) has developed a theory concerning scientific progress. In his approach, the paradigm is one of the central scientific concepts. According to Kuhn's definition:

> *"The study of paradigms, including many that are far more specialized than those named illustratively above, is what mainly prepares the student for membership in the particular scientific community with which he will later practice. ... Men whose research is based on shared paradigms are committed to the same rules and standards for scientific practice. That commitment and the apparent consensus it produces are prerequisites for normal science, i.e., for the genesis and continuation of a particular research tradition."* (Kuhn 1970, 10-11.)

According to Kuhn, paradigms exist for a while, only to be eventually replaced by new paradigms. There can exist several paradigms within one discipline, in which case there may be a relatively small number of scientists within the sphere of one paradigm. A part of a paradigm's nature is also its development from a sketchy initial stage to a mature phase; the paradigm then offers a real foundation for both the solving of scientific problems and the success of talented scientists.

Carr and Kemmis (1986) consider the paradigm especially important in socio-scientific research. According to them, a paradigm is needed so that the results and conclusions of the scientist can be logically connected to the basis of the study. The paradigm reveals the beliefs and intentions of the scientist and so makes the research activity rational and its results valuable. The existence of a paradigm makes it possible to make good practical use of produced information in cases where there are plenty of views and approaches available.

Burrell and Morgan (1992) have studied the concept of paradigm in sociology. According to them:

> *"Paradigm is defined by very basic meta-theoretical assumptions which underwrite the frame of reference, mode of theorising and modus operandi of the social theorists who operate within them. It is a term which is intended to*

> *emphasise the commonality of perspective which binds the work of a group of theorists together in such a way thatthey can be usefully regarded as approaching social theory within the bounds of the same problematic."* (Burrell & Morgan 1992, 23.)

The concept of paradigm by Burrell and Morgan is more narrow than that of Kuhn. Kuhn sees paradigm as an unsurpassed director of scientific thinking that determines how the scientist makes sense of reality. Burrell and Morgan see paradigm as an extensive concept that "defines schools", but in a more practical and development-emphasizing sense than Kuhn.

Paradigm can refer to the viewpoints, methods, beliefs, values, ideas and attitudes adopted by the scientist, that have a rather comprehensive effect on his research. Jack Mezirow (1991) examines the concept of paradigm on the basis of studies by Kuhn, Goffman, Bateson and Goleman. According to Mezirow, paradigm is an expressed, theory-based perspective of meaning that has generally been accepted into use. Mezirow also sees problems in paradigmatic research; these problems are caused by paradigm's limiting effect. Paradigm can even function as a "cognitive filter" of some sort in research. The scientist therefore has to be clearly aware of his own paradigm and its possibilities and limitations so that the objectivity required by scientific work can be fulfilled within these limits.

In Finland the concept of paradigm has been studied in the era of social sciences by Väinö Heikkinen, Erkki A. Niskanen and Kyösti Raunio, among others. Niskanen (1991) defines a pedagogic paradigm as follows:

> *The pedagogic paradigm is a tool of science just like terms, concepts, laws, theories and models. The pedagogic paradigm presents tools and ways to understand and describe the universe. The pedagogic paradigm presents ideas about the metascience of pedagogics. The pedagogic paradigm, therefore, draws from general metascience and pedagogic metascience, as well as specific material from research activity".* (Niskanen 1991, 34.)

Niskanen considers it important that in different pedagogic duties paradigmatic foundations are defined specific to each situation and problem. On the other hand, it is not

purposeful to problematize everything possible in a certain research situation. The existing paradigm then offers a metascientific foundation the scientist can lean on in his work.

Kyösti Raunio (1999) deals extensively with the concept of paradigm as the basic structure of social study. Raunio emphasizes the significance of extensive paradigmatic understanding in scientific work. At its most narrow, paradigm is to the scientist only a methodical model and by following it almost blindly, it is possible to make progress in research. Closer to the scientific ideal is, however, the research tradition, adapted from Brante (1985), that takes into account the following starting points as an entity:

1) *The paradigm itself*: a model that forms a foundation for research tradition.
2) *A certain understanding of the subject area*: an interpretation of reality that prevails at a given time; stems from the model.
3) *Methodology*: ways to obtain information about the elements and components of the subject area.
4) *Theories*: explanation systems and models that are compatible with the earlier points.
5) *Scientific community*: its structure and other social factors that influence the contents of theories. (Raunio 1999, 41.)

According to Raunio (1999), socio-scientific phenomena are so complex that no paradigm alone is able to clarify the different sides of social reality. The result will be a situation in which the building of socio-scientific paradigms will take place primarily on the basis of empirical problem-solving ability. Instead of ideological basic assumptions, the methods, standards and rules needed in problem-solving will be emphasized in the paradigm. This phenomenon also seems to characterize the study of the new paradigm of leadership, which is strongly directed to the modeling of leadership behavior and the empirical testing of models. This is yet another reason why it is important to study at first the basic assumptions and concepts that leadership training begins with.

Socio-scientific paradigms are diversifying. On the other hand, the already existing paradigm concepts of different scientists are characterized by complexity, even incoherency, in the area of leadership study (Bass 1997, 130). In my research I will operate with a wide paradigm concept, according to which a scientist must:

1) be aware of the paradigm in the background of his research topic and approach, its essential features and the advantages and disadvantages that can be derived from it;
2) be able to describe, from the viewpoint of his own paradigm, the interpretation of reality that is based on the latest research work and that is related to the scientist's own research topic;
3) base his framework on paradigmatic theory or model in order to take advantage of scientific information;
4) primarily lean on methodological solutions that are in accordance with the paradigm, but also be open to other options as well and
5) carry out open and active interaction with his own scientific community.

I take the list above as an operating guidance concerning this research. In the chapter 11 I will turn back to this concept of paradigm and evaluate whether I have been able to follow these scientific principles.

Paradigmatism can also be criticized. Hannus, Lindroos and Seppänen (1999) translate paradigm as "prevailing belief". To them, paradigm is a concept of intellectual stagnation. This interpretation is, however, a practical, non-scientific interpretation of the concept of paradigm, because here the writers see the concept of paradigm as a synonym of the culture as well as established structures and routines of an organization. In this case one should write about dogmatism if one wants to refer, say, to the uninitiative belief in authority.

In scientific work, especially in basic study, paradigmatism is seen more as an advantage than as a disadvantage. The absence of paradigm causes disorganization in research work and problems with the interpretation of information. There is a possibility to ask how many scientists have the actual capability to free themselves from the scientific rules of their own background and still carry out credible and good scientific work. The most important thing is that the scientist is aware the paradigmatic starting points of his study and reports on them critically.

3.2 Schools in the new paradigm of leadership

James MacGregor Burns's book “Leadership”, published in 1978, is considered a concrete starting point for the birth of the new paradigm of leadership (Bass 1985; Bryman 1992; Zorn 1992; Yammarino & Spangler & Bass 1993; Taylor 1994; Clark & Clark 1996; Gronn 1996). Burns approaches leadership from the viewpoint of power and influence: all leaders are active or potential wielders of power, but all wielders of power are not leaders. According to Burns, the basic function of leadership is to unite the individual objectives of the leader and subordinates in order to achieve the higher objective (vision). This thought therefore includes the possibility that people do not have to agree on everything, but the vision and direction of activity have to unite individuals.

Burns's central thought is to separate two forms of leadership. *Transactional leadership* is the most typical manifestation of leadership. It is based on reciprocal activity in which a leader approaches a subordinate in order to exchange something, like a salary for work. In transactional leadership it is essential that the leader attempts to achieve certain goals by influencing his subordinates, irrespective of the objectives of the subordinates.

Transformational leadership is more complex and more effective. Here a leader recognizes and exploits the needs and demands of potential subordinates. Furthermore, a transformational leader aims to recognize the motives of his subordinates, fulfill their needs at increasingly higher levels and thus make the subordinates commit themselves comprehensively. The result at best is a stimulating and constructive interactive relationship, in which the objectives of the leader and subordinates approach each other and in which leaders can become supporters and directors of the intellectual growth of their subordinates.

Burns is particularly interested in the activities of a transformational leader on the background of the personal growth of his subordinates. According to Burns, the core of personal growth is the development of values. Values and value education have lately been central topics of discussion in military training and especially as a part of officer ethos in the FDF. From the viewpoint of the new leadership training program, there is an assumption in the background of leadership behavior that the personal growth of a military leader has often to do with value choices. These value choices then guide the behavior of the individual consciously and unconsciously.

In education and education planning, values are the objects of constant research and also conflicts between schools. The acceptability of education being value-bound is related to the ability of a democratic society to carry out real and critical discussion about values. A value discussion requires an open culture that can tolerate what is different. The new leadership training program has been criticized for having been built without this critical discussion inside the organization. But the renewed leadership training aims to change the leadership culture of the FDF so that in the future actual value discussion would be possible. It is evident that the leadership culture of a military organization must be based on both externally and internally accepted value foundation. Thus, the shadow of indoctrination is traditionally above the field of military training (Puolimatka 1995, 153 - 160).

The core concepts of the process of growth described by Burns are *conflict* and *awareness*. Transformational leadership is built on the conflict related to the forming of the values of an individual, and the effect of this conflict on the individual's internal processes is remarkably strong. The birth mechanisms of conflicts are complex. Conflict is often born out of a clash between concrete needs and moral values, while growth means that more and more often choices are made on the basis of moral values. Solving conflicts is often impossible unless the individual is ready to change his perspective of meaning. Burns therefore sees a human being as a creature that develops and grows.

The duty of a leader is not to steer clear of conflicts. On the contrary, transformational leaders face them, exploit them, or even create conflicts themselves in certain cases. A transformational leader is able to exploit the tensions and conflicts in the value structures of his subordinates better than a transactional leader. Thus a transformational leader may be able to direct the formation of the individual structures of meaning of his subordinates. Transformational leadership could therefore be called constructive, because it has an empirical connection to the formation of individual structures of meaning (Zorn, 1992).

Central to Burns's thinking is that a leader is seen to enable the growth and development of his subordinates, or even to act as the motor of the whole process in such a way that work can even more extensively satisfy the growth needs of the subordinates. A transactional leader does not develop his subordinates, he only exchanges things for something else. A transformational leader can fulfill the growth needs of his subordinates and also creates significant commitment in this process. Transformational leader believes

that subordinates have the wish and readiness to develop, which means that his outlook on people is positive and it emphasizes growth. It has to be noted, though, that Burns approaches leadership purely from the viewpoint of social phenomenon, placing transactional and transformational leadership as opposite dimensions of leadership (Brown, 1993; Silins, 1994).

Beginning at 1980´s, the research on the phenomenon of excellent leadership behavior introduced by Burns has been enlarged to worldwide interest. This paradigmatic development has produced several competitive schools. From the point of view of military leadership, the school of transformational leadership is the most relevant to lean on, as seen later on in the chapter 6. However, I will shortly introduce also some research which has been done among other schools around the new paradigm of leadership.

3.2.1 Management of change and visionary leadership

According to Drucker (2000) it is impossible to manage changes, but it is possible to be ahead of them. A change manager sees the opportunities hidden in changes and can separate the right changes from the wrong ones. Furthermore, a change manager can carry out change in practice. Achieving efficient change management requires principles of activity for the creation of future, systematic methods to stake out changes and functioning strategies both inside and outside the organization. A balance must be found between change and stability. (Drucker 2000, 89 - 112.)

Lester (2000) introduces a five-step model of a change acceleration process. This model involves following steps in change management

- creating a shared need,
- shaping a vision,
- mobilizing a commitment,
- making change last and
- monitoring progress of change.

This five-step model should identify three stages of change: current state, transition state and improved state.

In their famous book “The Transformational Leader”, Tichy and Devanna (1986) approach transformational leadership from an organizational viewpoint and as a result, the

management of change surface as the main theme. The management of change is an important part of transformational leadership, but it is only one part of the picture. On the other hand, Tichy and Devanna problematize the execution of the vision, because they see that it always requires the renewal of existing structures. (Tichy & Devanna 1986, 186 - 187.)

Tichy and Devanna have nevertheless outlined the new paradigm of leadership from several significant viewpoints. One of the themes is to answer the question *why do visions motivate*? Considering the modeling of the paradigm, the question is well set, because the dimension of transformational leadership "inspirational motivation" contains these two basic elements (Bass 1998b, 5). In this viewpoint, management of change and visioning (visionary) leadership combine into an approach that has the same starting points (Bryman 1992, 115 - 118).

According to Tichy and Devanna, people develop certain meaning perspectives, i.e. schemes, for themselves. A scheme creates a foundation for development in new and surprising situations. In time, the schemes become a part of the min's deep structures and they reflect the individual's self-esteem. The stronger the self-esteem, the more flexible the schemes usually are. Changing an old scheme is often a confusing process and usually requires the creation of a new scheme first. In a difficult stage of change a new vision offers a road that can be followed. This builds inner motivation. The creation of a new scheme is based on a vision of its effects and application. Visions are often tied to values and therefore they become firmly rooted in the minds of people. (Tichy & Devanna 1986, 131 - 133.)

Juuti and Lindström (1995) equate management of change to the modification of an organization which, according to them, attempts to change the deep structure of culture, the organization's goals, strategies and structure at the same time. Change is based on the perception and communication of a vision. Moving organizational culture to a new level requires a macro-level change targeted at the organization's concept of operation and values as well as a micro-level change in the way individuals think.

Sethi (1994) studies the strategies of change management. The basic strategy recognizes the contributing forces of change, analyzes challenges and threats, makes strategic choices, executes those choices and evaluates the execution. The greatest challenge in

change management is getting people to commit themselves to change. Like Yukl (1998), Sethi considers the execution of change to be the most important means of transformational leadership.

Kettunen (1997) extensively deals with the essence and duties of leadership. When examining the processes of management, he describes the connection between leadership and change. With new concepts and defining projects it is possible to create discussion and bring forth new stimuli, change the way the high leadership thinks, develop a new policy and provide an image (or at least an illusion) of the modern leadership of the company. By changing the strategies of the entire organization it is possible to refresh activities, change organizational culture and purposefully develop a new way of thinking. New procedures can break old routines, change activities and provide an image of a more dynamic company. In his analysis, Kettunen (1997, 125 - 126) concludes that the way an individual thinks and his perception of his own work are decisive from change's point of view. Real changes are based on the changing of people's established conceptions and ways of thinking.

Leanne and David Atwater (1994) analyze management of change as well. According to them, management of change takes both structural and behavioral change into account. Thus the emphasis of management is on the execution of change, while behavioral change is the central task of leadership. It has to be possible to rebuild the schemes related to the organizational culture of the members in the organization so that they support change. Change in behavior has to be planned so that it depends on the nature of change and the development of the attitudes of the members of the organization. The change in leadership culture is guaranteed by a change in direction at strategic level; this, in turn, requires a change process that applies to the entire organization.

When leaders are trained and encouraged to delegate, to use the principles of transformational leadership and to develop the skills of their subordinates, the organization is ready to face the challenges of change. In order to guarantee the success of organizational change, the key task is to organize leadership training based on the theoretical framework of transformational leadership. Organizational change can be seen to progress in three phases:

- change in values and attitudes,
- change in behavior, and

- carrying out change in the structures and procedures of the organization. (Atwater & Atwater 1994, 149 - 151.)

In modern thinking, change is a lasting phenomenon in an organization's field of activities. The change from the culture of transactional leadership to the culture of transformational leadership requires that the entire organization adopt new way of thinking. Control, surveillance and minimal social interaction should be replaced with inspirational motivation, intellectual stimulation and leadership by example. (Atwater & Atwater 1994, 146 - 171.)

Where stability and change meet, conflicts that are often described with the concept of paradox are created. Conflicts are paradoxical, because an efficient organization needs both stable and changing (developing) elements.

How to train leaders who are capable of controlling the paradox? Changing the existing organizational structures may be fast, but changing deep structures and perspectives of meaning that are related to culture and people require more extensive measures over a long time span. One of the central means in military organizations is leadership training. With leadership training, preconditions have to be created for the control of the paradox at both conceptual and practical level. As Schein (1992) writes, the development of organizations is not possible unless it is understood that organizational culture is the most important drag on change and progress. Passive forms of adjustment are not enough, active processes of adjustment are needed. Learning organizations succeed, because they can change constantly.

According to Kettunen (1997, 411 - 419), a characteristic of successful organizations is the control of the paradox. An organization has to try to fix its structures, or stabilize and centralize its routines and create an extensive control and directing system. On the other hand, attempts should be made to decentralize so that room is left for new ideas, innovativeness and creativity. Creating something new requires an often critical attitude to prevailing situations and generally accepted models of activity.

As I show in Figure 8, the existence of paradox can be seen in the different stages of the theory of leadership throughout the last century. Emphasis has shifted greatly from management and organization-centric theories to leadership and individual-centric

theories. In the era of learning, same kind of shifting has taken place from the experience-centered to the mind-centered theories and vice versa (Reynolds et al, 1996). In this viewpoint, the new paradigm of leadership represents a synthesis in which the quality of leadership is decided by finding balance between the two main sources of paradox.

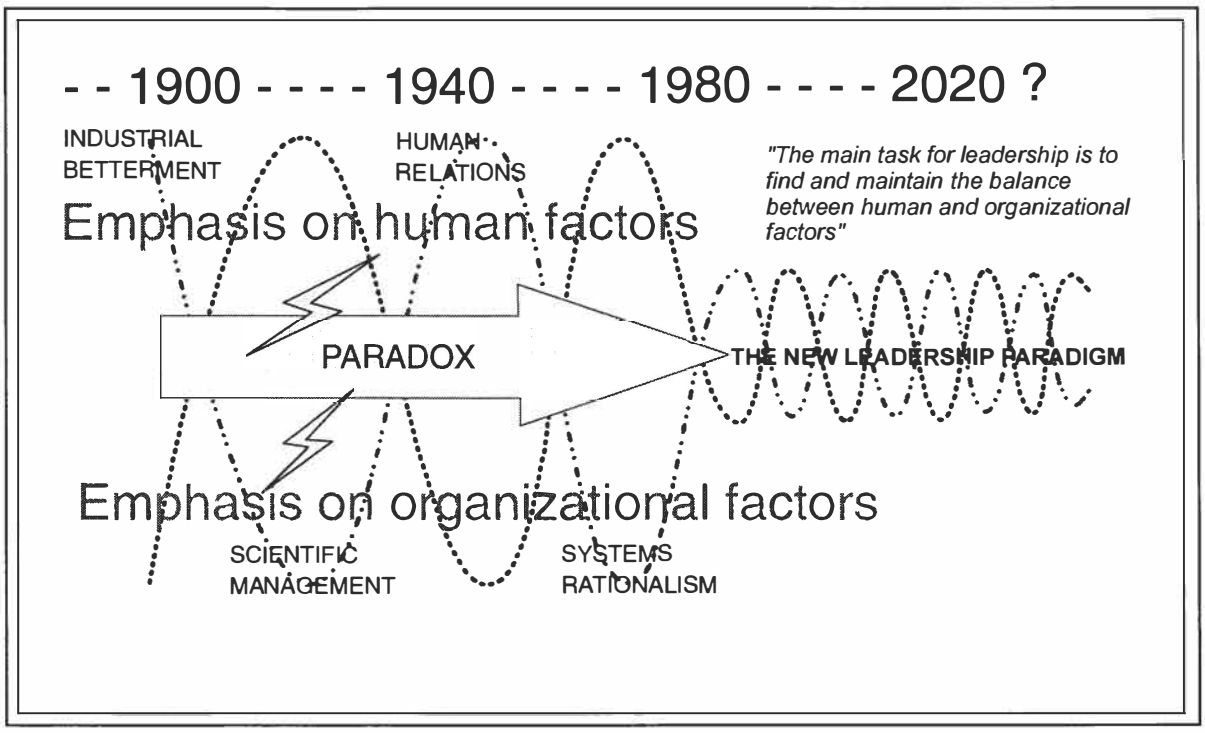


Figure 8. Paradox in the theory of leadership.

Tichy and Devanna (1986) define the birth factors of the paradox in an organization as follows:

1) the fight between forces that support stability and change;
2) a dramatic tension between the acceptance and denial of reality;
3) the struggle between fear and hope and
4) the battle between managing things and leading people.

Leaders have to control the paradox by creating a positive vision of the organization's future and by supporting individuals at emotional level in the difficult phases of change. Avolio (1998) deals with the paradox in relation to time. The present is a state between the past and the future. Leaders who represent stability see the present as a continuation of a successful past. Leaders who represent change see the present as a springboard to the future and its challenges. The paradox can be controlled with development thinking that

extends to individuals, groups and the whole organization and which has the following stages:

- building a scenario of the future,
- recognizing the conflict between the present and the scenario,
- formulating the required strategy of activity and way of thinking,
- changing the practical process,
- reinforcing change, and
- harmony. (Avolio 1998, 12 - 13.)

Because change is constant, the development process is a cycle that repeats itself. If organizational culture requires in reality from its members the constant development and responsibility-taking for one's own work that are required by change, leadership can be seen as a means to exploit the individual potential of each member of the work community. Magee, Beach and Mitchell (1991) have studied the management of change especially in a military organization. They approach leadership by studying the forces that resist change. At individual level, change is usually resisted for reasons that have to do with narrow-minded seeking of one's own benefit, the lack of knowledge and trust, the lack of the community's vision and the avoidance of the challenges that succeed change.

At individual level, the conflict between the absolute value of power and the moral and values of an individual is related to the paradox. A military leader often finds himself in situations in which he has to make choices, consciously or unconsciously, in this exact position. We therefore go back to the basic premise, the thoughts of Burns (1978): development as a leader is personal growth, the core of which is the shaping of values in different conflict situations. The personal growth of a military leader becomes visible when more and more often choices are based on morals and values instead of seeking one's own benefit.

Tichy and Devanna (1986) define also those qualities of transformational leaders that can be used to separate them from transactional leaders. In the framework of leadership behavior the following qualities can be seen as the critical factors of the potential of a transformational leader capable of managing the change:

- they recognize themselves as agents of change,
- as individuals, they are brave and take deliberate risks,
- they believe in people and are sensitive, taking others into consideration,

- they are guided by clear values,
- they are life-long learners and can learn from and talk about their mistakes,
- they have the ability to function in complex and unclear conditions and the ability to withstand uncertainty, and
- they are visionary. (Tichy & Devanna 1986, 271 - 280.)

The management of change as well as visionary leadership has been studied and much has been written about it in the past years. People's commitment to change so that real changes occur in their ways of thinking and functioning becomes the critical point of management of change. What is then needed is leadership that inspires commitment through attractive visions by changing the attitudes of individuals as well as the ways in which they think. Tichy and Devanna (1986) clearly integrate transformational leadership into management of change. This is natural because according to other scientists as well, transformational leadership corresponds to the challenges of management of change in practise at individual and organizational level better than any other earlier model or theory. Paradigm-oriented analysis reveals, however, that in the view of leadership behavior transformational leadership is a universal approach to leadership, the efficiency and practicality of which are not limited to a certain operating environment.

From the viewpoint of the concept of leadership, I see the following subentities to be a part of effective leadership in a military organization:

1) analyzing the change of the area of operations with the means of anticipatory management;
2) following and exploiting technical development from the viewpoint of management systems and information warfare;
3) structural development of the organization and the maintenance of routines that support efficiency and
4) excellent leadership behavior that increases the efficiency of all activities.

Even though the entity of leadership described above points to leadership at strategic level, those same elements recur in their own conceptual systems all the way to the lowest levels of leadership. Excellent leadership behavior requires that the organization have a vision. With the help of the vision and the objectives derived from it, leaders can direct the

change in people's perspectives of meaning and over a longer time span the organizational culture as well. (Bass 1985.)

3.2.2 Charismatic leadership

Already in the beginning of the 20th century, Max Weber studied intensively the concept of charisma. He saw charisma mainly as an innate gift with which a charismatic leader can influence other people, concluding that the term 'charisma' will be applied to a certain quality of an individual personality by virtue of which he is considered extraordinary and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities. These are such as not to be accessible to the ordinary person. Weber defines charisma as an innate part of an individual's personality. (Bryman 1992, 22 - 30.)

Lindholm (1990) who has studied the concept of charisma defines six main streams from the theory of charisma and he has named them as follows:

- the social theories of passion (Mill, Nietzsche, Hume),
- sociology of irrationality (Weber, Durkheim),
- hypnotism and the psychology of groups (Mesmer, Le Bou, Tarde),
- Freud's psychology of groups,
- charisma as a mental illness or antisocialism and,
- synthetic theories.

Researchers are pointing out that today the charisma of public figures is above all a phenomenon created by the media, behind which is a careful strategy and the purposeful training of the public appearance of the person in question. Bryman (1992) ends up defining:

> *"Charisma has to be viewed as a type of relationship between leader and led which is the outcome of a process which has been described as the social formation of charisma"* (Bryman 1992, 164).

By social process Bryman means the interactive relationship between the leader and other people, i.e. leadership behavior. Charisma is therefore a phenomenon that is born and lives in the conceptions of the people who surround the leader.

When analyzing the concept of charisma, Burns (1978, 244 - 247) writes about "heroism" that in his opinion describes the attitude of other people towards an individual who is overrated for some reason. According to Burns, heroic leadership is the relationship between the leader and his subordinate, the most fatal characteristic of which is that it lacks criticism and conflicts. Actually the question according to Burns is that a heroic leader offers people a social object that functions as a symbolic solution to people's hatred, frustration and problems. Such phenomenon appears especially in connection with powerful crises that shake social communities. Because a charismatic leader is above all a social symbol, this kind of leadership often lacks genuine interaction and criticism of goals.

In his book "The Charismatic Leader", Conger (1989) attempts to unravel the mystery of charisma by:

- defining those forms of behavior that separate charismatic leaders from others,
- analyzing the mechanism that changes the leader's behavior into a phenomenon of charisma in the minds of other people,
- studying the role of charismatic leaders in innovations and management of change,
- focusing on the negative effects of charisma, and
- describing how the phenomenon of charisma could be used to develop organizational efficiency.

Conger describes charismatic leadership like Tichy and Devanna (1986) described transformational leadership. The similarity is so strong that the question is in practise about the same phenomenon: excellent leadership behavior. According to Conger, the concept of charisma and transformational leadership are separated the most clearly by the negative dimension of leadership, "the dark side of charisma". A charismatic leader can be guilty of going overboard, lose contact with real life and the needs of his subordinates or start pushing his own cause. The entire organization suffers as a result of this type of leadership. (Conger 1989, 137.)

Yukl (1998), too, extensively analyzes charismatic leadership and its negative dimension. According to Yukl, the problem is how the nature of leadership is defined in the end. Are the effects of leadership on the lives of subordinates being studied, or the personality or

values of the leader? Yukl ends up with the view that in the end the nature of leadership is determined by whether the leader tries first and foremost to seek his own benefit (personalized power orientation) or the common good (socialized power orientation). The latter concept is also connected to values as the basic structure of leadership.

Negative charisma can manifest itself in an organization for example in the following ways:

- the complete lack of interaction and criticism,
- resistance roused by impulsive and unusual behavior disrupts activities,
- depriving subordinates the merit of success for one's own benefit and on the other hand the denial of failures, meaning that there is no learning from mistakes,
- administrative routines do not function effectively,
- the risk of failure caused by excessive self-confidence and lacking analysis grows in the entire organization, and
- there is no continuum for leadership. (Yukl 1998, 311 - 313.)

The surfacing of charismatic leaders is influenced by many phenomena that surround people, such as social insecurity, changes taking place in the organization and the relationship between the surrounding culture and charisma. When studying the amount of charisma at the different levels of leadership, Yammarino and Bass (1990a) did not find significant differences in the amount of charisma at different levels of leadership. Bass (1998a) confirmed with empirical research that charisma is related to the nature of the interaction between the leader and his subordinates and it is not tied to the certain level of leadership. In this research there is empirical evidence that in the armed forces of the United States the "direct combat leaders", i.e. battlefront leaders, were considered to be much more charismatic than "technical combat leaders", i.e. leaders in the rear.

Hogan, Raskin and Fazzini (1990) have studied the negative effects of charisma in organizations. According to them, there exist three leader types that can be both charismatic and destructive to their organizations, in other words leaders with dark charisma:

- a socially very competent type who nevertheless lacks competence in relation to management,
- a type with excellent knowledge, skills and social abilities, who hides passive aggression and paranoia, and

- the narcissistic type. (Hogan et al 1990, 343 - 354.)

Is charismatic leadership a synonym for transformational leadership? No, it is not. Charismatic leadership can also be "dark" or "bad", meaning negative from the viewpoint of other people, the entire organization and moral values. The level of behavior that is visible to the outside has notable connections to transformational leadership, but the differences become obvious at the level of values. A transformational leader attempts continuously to find ways to combine the needs of his subordinates and the organization. He can put the needs of his subordinates before his own.

The activities of a transformational leader are generally guided by democratic, Christian ethical basic values and a positive conception of human beings. A charismatic leader (dark charisma) can at the level of values be guided solely by the seeking of his own benefit or another undesirable motive, in which case the long-term effects of leadership can be very harmful. Beyond this, it must be remembered that in the origin´s of the new paradigm of leadership, Burns (1978) expressed his dislike of the term charisma. He argued that the variety of meanings that the word is capable of assuming has meant that it has lost its utility as a tool of analysis. This statement is even more relevant in the context of practical training and developmental efforts.

3.2.3 Transformational leadership

Already in 1985, as if foreseeing the future, Bass wrote:

> "*But as will be seen, transformational leadership is not a rare phenomenon limited to a few world-class leaders. Rather, it is to be found in varying degrees in all walks of life. The problem remains as to how to identify and encourage its appearance in the military, in business and industry, and in educational and governmental agencies.*" (Bass 1985, xv.)

Transformational leadership facilitates the redefinition of people´s mission and vision, a renewal of their commitment, and the restructuring of their systems for goal accomplishment. The essence of the transformational leader is dedication to fostering the growth of organizational members and enhancing their commitment by elevating their goals. (Ross & Smyth 1995, 67.)

In military leadership it is essential that the effect of transformational leadership is at its strongest in various crisis situations. Even if leadership in a crisis situation were direct action and steering of troops based of short orders, the time before the crisis would be spent creating the mental and functional potential for the troops that success is based on. For example, building trust between a leader and his troops usually takes some time. Transformational leadership thus creates preconditions for success in battle.

Bernard M. Bass is a primary researcher in the further development of Burns's thoughts and in the modeling of the paradigm (Avolio & Bass 1995a, 1995b and 1998; Avolio & Bass & Jung 1998; Bass 1985, 1997, 1998a and 1998b; Bass & Avolio 1989, 1994, 1996a and 1996b; Bass & Stogdill 1990; Hater & Bass 1988). Led by Bass, other scientists, like Bruce Avolio, Fran Yammarino, David Waldman and Leanne Atwater to name just a few, have participated in the development work in the Binghamton University Center for Leadership Studies. The research has led to the commercial application of the Full Range Leadership Model (FRL) developed from the paradigm, as well as to several cooperation projects with the armed forces of the United States, Australia and Israel.

In his book "Leadership and Performance Beyond Expectations" (1985), Bass adopts as his starting point the division between transactional and transformational leadership presented by Burns. Bass considers the earlier empirical research on leadership to be unsatisfactory. Statistically, most of the shifts in leadership remain unexplained, even if the results were significant. Research has to be deepened conceptually and expanded in an interdisciplinary manner.

Bass defines transactional leadership with three phrases:

1) a leader finds out what is wanted in exchange for a job performance and gives it to his subordinates if performance gives reason to do so;
2) trying one's best is encouraged with rewards or promises of them and
3) if the interests of a subordinate are related to the work in hand, the leader comments on them. (Bass 1985, 11.)

In this context, Bass expands Burns's view on the nature of leadership, because he sees the concept of transactional leadership to correspond mainly to the contents of the concept of management. Thus, a transactional leader is more a manager than a leader. A transformational leader gets his subordinates to do more than they originally intended.

With the original intention Bass means an estimate of the efforts needed to achieve a certain objective made by an individual based on his own perceived efficiency.

This endogenous increase of motivation can be made to happen in three (correlating) ways:

1) the leader rises his subordinates' level of awareness of the value and importance of objectives and the ways of achieving them;
2) the leader gets his subordinates to place the good of the group or community before the good of an individual;
3) the leader is capable of intellectually raising his subordinates to a level on which activity is directed more and more by (growth) needs of a higher level. (Bass 1985, 20.)

Perhaps the most central difference in the thinking of Bass and Burns has to do with the relationship between transactional and transformational leadership. Burns sees these two dimensions of leadership as extreme opposites. Bass, on the other hand, says:

> *"Conceptually and empirically, we find that leaders will exhibit a variety of patterns of transformational and transactional leadership. Most leaders do both but in different amounts"*. (Bass 1985, 22.)

Bryman (1992) analyzes the new paradigm of leadership. He defines in the area of leadership research three central approaches that complement each other, thus forming a paradigmatic entity that has prevailed in the past centuries. The approaches are:

- leadership as influencing other people,
- leadership in relation to a certain group, and
- leadership in relation to objectives. (Bryman 1992, 1 - 2.)

Bryman classifies the most important research trends in the area of leadership. According to Bryman, the clearest theoretical entity of the new paradigm is transformational leadership, of which charismatic leadership forms one part. Beside Bryman, both Conger (1989) as well as Kouzes and Posner (1995) consider charisma to be the central concept of the new paradigm. In leadership training the concept of charisma is problematic, however, and it actually prevents the exploitation of the paradigm in leadership training programs. Charisma in itself is a phenomenon, certainly very close to transformational

leadership. Transformational leadership can, however, be modeled and broken into forms of behavior, with the help of which progress in leadership training can be made.

Bryman (1992) concludes that whether one talks about transformational, charismatic or visionary leadership, in practice there is one and the same phenomenon behind the viewpoints and concepts. As Conger (1989, 4 - 5) notices, charismatic leaders are by vocation change agents; they motivate change through a strategic vision. These are among the main attributes of visionary and transformational leadership..

Bryman does not go deeply into the concept of paradigm or the metascientific problems of the study of leadership. In practice he defines paradigmatic foundations of the study of leadership from the viewpoint of the contents of the concept of leadership. When speaking of the parallel and partly conflicting schools, Bryman thinks the question is about the new paradigm of leadership still developing or being in the initiative stage.

Research has been carried out already between competitive schools. Tracy and Hinkin (1999), among others, have compared the Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio to a similar meter of Managerial Practices Survey (MPS) developed by Yukl, for example. Bryman considers the most central topics of further research of the new leadership paradigm to be the connection between practice and effectiveness, taking into account the situational factors in research arrangements and the increase of qualitative, case-type research.

In their research report (1995a) Avolio and Bass concentrate mainly on the analysis of the study of leadership training, but the report includes an overview of paradigm and its modeling. Paradigm-wise the new thing that the report contains is the surfacing and definition of the concept of pseudo-transformational leadership. By this concept the researchers mean leadership behavior in which the characteristics of transformational leadership are apparent on the surface, but the real motive of such behavior is to realize the leader's own interests and intentions, meaning it is the before-mentioned "dark charisma". Differences to a real transformational leader surface mainly through problems concerning morals and values and through the dimension individualized consideration of subordinates. (Avolio & Bass 1995a, 4 - 6.) Later Bass (1998b) states that Burns (1978) was originally correct in defining elevated morals and values as the premise of transformational leadership.

Wofford and Goodwin (1994) approach theoretically the cognitive processes of transformational and transactional processes. They end up with conclusions according to which there are differences in schemes, perspectives, attributions as well as strategic processes. Attributions mean observations and conclusions that deal with the reasons of behavior (Helkama et al 1999, 131). Transformational leaders have more schemes and a better capacity to deal with them than transactional leaders. The essential thing is that the cognitive processes of transactional leaders are tied to short-term goals of activities, whereas transformational leaders have the vision as their point of focus. (Wofford & Goodwin 1994, 162 - 181.)

The already mentioned phenomenon and its existence is the central scientific starting point of the new paradigm of leadership. The phenomenon can be described with the term "excellent leadership behavior". Within the framework of the new leadership paradigm, the existence of this phenomenon can be proved with qualitative methods based on everyday experiences as well as statistically with quantitative methods. (Bass 1998a, 10 - 17.)

Bass (1997) analyzes separately the paradigmatic foundations of transformational leadership. He bases his conclusions on the expanding empirical research that crosses culture and organization borders and is related to the new paradigm of leadership. Bass considers universalism as the starting point of the paradigm. By universalism, Bass means that the phenomenon of transformational leadership and its central features can be conceptualized and with research be noticed in various cultures and organizations. Exceptions can be understood through the culture or special features of the organization being studied.

In addition to universalism, in Bass's, view the essential contents of the paradigm mean that the paradigm gives a foundation to research methods and the measuring of a phenomenon. Universal dimension of measuring does not mean that everywhere the same statistical results would be obtained using a certain meter. Measuring is based on the fact that a phenomenon can be perceived structurally in the same way everywhere with tools that are developed with research. The paradigm offers an adequate foundation for measuring and understanding this phenomenon. The connection of transformational leadership to other schools of the new paradigm of leadership, like charismatic and visionary leadership, is naturally strong.

Universalism means a generally applied system of concepts. In this system of concepts, each leader has a measurable profile that is based on the dimensions of transformational leadership. The profile is always related to the leader's area of operations, or group, organization and culture. Averages shift in a natural way when moving from one context to another. A leadership profile has, according to research, a fairly logical connection to the effects of leadership in an organization. Variation between the general theory and observations of real life are caused mainly by differences between systems of concepts and cultures.

Based on a relatively extensive empirical material that is currently in use, I consider the following three basic assumptions to be the starting points of leadership behavior research:

1) on average, transformational leaders are the most effective. Active transactional leaders are more effective than passive transactional leaders. The least effective is 'laissez-faire' -leadership;
2) an increase in effectiveness as leadership behavior changes is always one-way. When progressing from 'laissez-faire' -leadership towards more effective forms of leadership, changes in behavior are apparent in the effects of leadership as well. If, on the other hand, the starting point is transformational leadership, the lower-level forms of behavior will not add anything new to the effects of leadership and
3) the behavior profile of the most efficient leader, a transformational leader, is pretty much the same across organizational and cultural borders. (Bass 1997, 135 - 136.)

When it comes to the application of paradigm, Bass (1997) emphasizes that in addition to universalism, it is essential to understand the connection between culture, systems of concepts and practice. Paradigm does not assume that for example a leader who has been found transformational in his home country would automatically be considered transformational in a foreign culture. Paradigm functions within the systems of concepts of each particular culture, meaning that leadership can in practice have many different forms of manifestation in relation to how others in the work community experience behavior and how it affects their work performance.

The mechanisms of transformational leadership can be explained with the theory of social constructionism, according to which the mind of a human being is built as a result of social interaction. People interact through symbols. To understand the individual or phenomena being studied, the researcher has to understand the system of symbols in the culture that surrounds the individual or phenomenon. (Burr, 1995.)

The new paradigm of leadership is based on the understanding of human nature (which has remained quite unchanged in the course of time) and needs in connection with leadership: it is essential, for example, that every individual hopes to win his superior's approval. In different cultures this approval can be shown in very different ways. The paradigm does not exist in the external forms of behavior, but instead in the experiences and interpretations of individuals.

In chapter 6, I will examine the modeling of leadership behavior through material related mainly to the research on transformational leadership, because the work of this scientific community is the most promising conceptually and also because of its abundant empirical research (Podsakoff et al, 1996). Another, at least equally important justification for this choice is that in some developed military organizations transformational leadership has been both studied and applied as a basis for leadership training (Bass 1998a, 19 - 22).

3.3 The new paradigm of leadership in a military organization

3.3.1 The concept of military leadership

Defining the concept of leadership is essential from the point of research, but this issue has proved problematic in time. No clear-cut universally accepted definition of leadership has emerged, but there is growing belief that there are differences between managers and leaders. Behind these problems is simply the complexity of the phenomenon.

It seems, that most videly accepted definition among theorists view leadership as an interpersonal process through which one individual influences the attitudes, beliefs, and especially the behavior of one or more other people. The massive "Bass & Stogdill´s Handbook of Leadership" (1990) with 1182 pages finds hundreds of definitions and approaches to the concept of leadership. Bass concludes, that the definition of leadership

should depend on the purposes to be served by the definition. One complex definition that has evolved, particularly to help to understand a wide variety of research findings, is:

> *"Effective leadership is interaction among members of a group that initiates and maintains improved expectations and the competence of the group to solve problems or to attain goals"* (Bass & Stogdill 1990, 20).

According to Burns (1978), it is possible to speak of leadership when organizational, political, psychological and other resources are taken into use based on certain motives and objectives in such a manner that subordinates commit to common goals. This definition requires that a leader actively takes into account the needs of his subordinates. Leadership of this kind can not happen without real interaction between the leader and his subordinates.

Bryman (1992) emphasizes three basic elements that leadership is built of: influencing other people, group dynamics and the objectives of activity. For Conger (1989, 36), the concept of leadership is, more or less, a function of certain leadership behavior. In his definition of perceiving leadership, the critical dimensions of leadership behavior are the number, intensity and relevance to the situation.

Yukl (1998) views leadership broadly as the process wherein an individual member of a group or organization influences the interpretation of events, the choice of objectives and strategies, the organization of work activities, the motivation of people to achieve the objectives, the maintenance of cooperative relationships, the development of skills and confidence by members, and the enlistment of suppot and cooperation from people outside the group or organization. Leadership is treated as a specialized role and social influence process. (Yukl 1998, 5.) The definition by Yukl is a broad one, indeed; in my approach it is comparable to the definition of military command. Schein (1992) sees leadership as an agent of change, emphazising that the influence is taking place through leadership behavior. He shares the views of the new paradigm of leadership as he approaches the concept of leadership in organizational context:

> *"..the only thing of real importance that leaders do is to create and manage culture and that unique talent of leaders is their ability to understand and work with culture. If one wishes to distinguish leadership fron management or*

> *administration, one can argue that leaders create and change cultures, while managers and administrators live within them...Culture is the result of a complex group learning process that is only partially influenced by leadership behavior. But if the group´s survival is threatened because elements of its culture have become maladapted, it is ultimately the function of leadership to recognize and do something about the situation."* (Schein 1992, 5.)

Clark and Clark (1996) emphasize, that leadership is an observable activity. They define leadership in terms of leader and follower behavior and not by the setting in which these behaviors occur:

> *"Leadership is an activity or set of activities, observable to others, that occurs in a group, organization, or institution and which involves a leader and followers who willingly subscribe to common purposes and work together to achieve them"* (Clark & Clark 1996, 25).

In my opinion, the definition by Clark & Clark (1996) is merely a definition of leadership behavior. In general, the few definitions above describe well the basic view into leadership that scientists representing the new paradigm of leadership have. In the new paradigm of leadership, the concept of leadership behavior is very close to the concept of leadership.

In Finland, it is customary to separate management and leadership from each other. According to the new paradigm of leadership, management is a concept parallel to transactional leadership, which is not the most effective leadership because it lacks the dimension that makes people commit themselves. Management in its customary meaning is actually in the new paradigm one dimension of leadership that creates preconditions for transformational leadership.

In general, leaders operate above and beyond mere mechanical compliance with routine directives of the organization - teacher, facilitator, coach and mentor. Managers follow the strictness of a job description - plans, organizes, directs and controls. Managers are people who do things right and leaders are people who do the right things. Organizations need both and individuals use a combination of leadership and management practices to be truly effective. (Lester, 2000.)

The concept of leadership is cumulative in the new paradigm in its relationship to efficiency: this kind of leadership includes all the areas that are needed to achieve excellent results in an organization. In connection with the modeling of the paradigm, scientists have obtained empirical evidence that these dimensions of leadership position themselves in a hierarchical order. Transformational leadership will rise to the top of this hierarchy, being therefore the area of leadership with the most effect on the efficiency of an organization.

In order to define the concept of military leadership, it is necessary to analyze the factors, that set their demands to the definition:

1) it should reflect the basic assumptions of the new paradigm of leadership;
2) it must operate smoothly together with the most important concepts above and below, i.e. the concept of military command and the concept of leadership behavior and
3) it must be applicable in the point of view of military leadership training practises.

In my approach, there is a difference between the concept of leadership and the concept of leadership behavior. Leadership is a higher order concept than leadership behavior, because it includes also the potential of a military leader. Through the concept of potential, we are able to go beyond the surface of leadership behavior to the deeper level, the roots and sources of behavior. This is important, because only at this deeper level we are able to understand the human mechanisms of values, needs, wants, attitudes and motives. For example, only at this level we are able to distinguish dark charisma from transformational leadership. I define military leadership as follows:

> *Military leadership is an continuous activity of a military leader and a sub-concept of military command. The function of military leadership is to commit people to their task and mission. The basis of military leadership is the potential of a military leader. The activity is seen as effective leadership behavior in changing operating environments. Military leadership behavior is followed by measurable organizational outcomes.*

Military leadership is leadership in a military organization. During times of peace, a military leader faces in different situations the same challenges as any other leader. With his

leadership behavior, each military leader creates preconditions for the production of individuals and war time troops that are capable of performing successfully in battle. The leader of a civilian organization does not, however, have to prepare to face the most demanding challenge of leadership: the responsibility for both the task and people is stretched to the limit during war. The ultimate effectiveness of a military leader is measured in battle that contains many lasting elements at the level of an individual person despite technological development. Leading soldiers in battle has always been among the most demanding operating environments for leadership.

3.3.2 The training of military leadership

As a subject of study, leadership training is complex. Complexity starts from leadership as a phenomenon, its conceptualization and modeling. Understanding and describing this phenomenon is nevertheless important, because it creates preconditions for the understanding of the entity. Leadership training has created for various institutions a possibility to function, associations and companies, because the demand for leadership training is continuous (Goldstein 1993, 4 - 8). Many training programs and systems of measurement lack credibility and coherence that are provided by an extensive theoretical foundation, and they rarely try to change underlying traits and values (Yukl 1998, 466 - 467).

Conceptually leadership and leadership training form a closed circle. The ability and way of today's leaders to perceive the demands of the future defines the premise for the implementation of leadership training. In this situation it is advantageous to the organization if research can be used to find and pinpoint at least some lasting elements on which the control of the change in the operating environments can be built. This is one reason why the new paradigm of leadership has been seen as a very competitive basis for organizational leadership training. (Bass 1998a, 102.)

In the era of leadership, relevant training methods can be extracted from the critical constructivist approach. *Behaviorists* believe that all information is derived from experience. For behaviorists, education is a process of carefully organizing experience to maximize learning. The organizing principle is that information must be broken down into small, simple increments. Learners are encouraged to make observable responses so that

instructors can evaluate their progress and reinforce students at the appropriate times in the appropriate ways.

Social constructivism and sociocultural perspectives help educators to understand the impact of the social and cultural context on student learning. Sociocultural theorists typically link activity to participation in culturally organized practices, whereas constructivists give priority to individual students´ sensory-motor and conceptual activities. In general, students should have enough opportunities to interact with peers and more experienced others. *Schema theory* has also many implications to learning. It makes the active, involved learner a key component of the successful learning situation. Student-centered approaches such as strategy instruction, metacognition, and selective attention become aspects of leadership training programs. (Reynolds et al, 1996.)

In the new leadership training program of the FDF, all the main theoretical approaches to learning have been noticed and utilized. As shown earlier in Figure 4, in the life-long process of learning for leadership all these approaches have to be present supporting each other; to synthetize the optimal effect is a question of noticing individual differencies, adjusting the timing and finding the right balance.

In leadership training the theory, models, concepts, and practises of leadership are combined. A military leader should be seen as a coach of his subordinates. On this basis there has been a reason to find out whether leadership and training have a common framework, a conceptual and functional foundation. Actually, this is what this research is all about. As we do believe, on this basis it is possible to train military leaders who can lead a battle and also face the challenges of the future and change. (The School for Leadership Development, 1998.)

The new leadership training program based on the new paradigm of leadership presents as such a change to many military leaders. At the level of basic assumptions the change is ostensible: deep leadership does not actually contain any new information (Bass 1998a, 4). At the level of procedures and practises, however, the need for change in the FDF is real according to the national surveys and evaluations. Carrying out the leadership training program is a generation-long process. Thus, the FDF still has to maintain and even enhance its competitiveness and credibility in various fields of activity, following the implicit values also in leadership training (Hägglund 2000, 50). The leadership training reform

concentrates on the most important resource of a military organization: the military leaders.

Because the leadership training of the Israeli armed forces has during the past decade been based on the applications of the new paradigm of leadership, it has been possible to carry out long-term research on the functioning of the paradigm in different military crisis situations. According to latest research (Gal and Jones 1994; Bass 1998a; Gal 1999), transformational leadership is one of the central ways to prevent battle stress and maintain the fighting ability of troops. Research that relates to peace time military training (Bass and Avolio 1998a; Vuorio 2001) has noticed that transformational military leaders achieve better training results than transactional military leaders.

In practice the leadership training reform would best take place if we could separate ourselves from earlier routines and set ways and create something new based on visions and experience. Personnel already in service does, however, need an opportunity to understand and internalize the basic idea of the new training program so that they can commit themselves to carrying it out in practice. In the chapter 5 I will study the basic assumptions, implications and methods of the new leadership training program more closely.

3.3.3 The relationship between military organization and leadership

The basis of the activity of a military organization is a clear line organization, in which the bureaucratic features should be neutralized with the flexibility brought by leadership (Sotilasjohtaja I 1990, 61 - 62). In practice, the personal responsibility related to leadership often fades into the structures and procedures of an organization, though. *What would be the most efficient and most practical relationship between a military organization and effective military leadership?*

As theoreticians, Sun Tsu and Carl von Clausewitz can not be ignored from the viewpoint of the main duty of military organizations - warfare. Sun Tsu (1998) sees a line organization as a basic solution that serves leadership in war in the best way possible. In the interpretation of the five basic matters - moral influence, weather, terrain, leadership and doctrine - Sun Tsu elevates leadership into a high concept while organization receives mostly instrumental value in his thinking.

Carl von Clausewitz's thoughts have created a foundation for western political and military strategic thinking. Clausewitz (1998) emphasizes that the duties and activities of a military organization must be integrated into political objectives. When writing about the maintenance of a military force, he aims for clear definitions of objectives: organization and training precede the actual use of a military force, maintenance is connected to all activities and it creates preconditions. All in all, Clausewitz wants to make a clear difference between war preparations and actual war. He also emphasizes that warfare is not only mechanical skills but human interaction.

These war theoreticians emphasize the importance of leadership and developed conceptual thinking in order to achieve success. Organization is only a tool for leadership. The current organization-based research trend has been born later and it is partly the result of Tayloristic production thinking and technological development that has brought with it not only new opportunities, but also complexity and bureaucracy to the activities of an organization.

3.3.4 Military leadership and human resources management (HRM)

Organizational culture is a latent, value-laden and quite permanent abstract structure with respective sub-systems (Hersey et al 1996, 13 - 14). Typically, in an governmental institution like a military organization, this abstract phenomenon manifests herself in a dualistic way. The two dynamic components of this manifestation in an military organization are human resources management (organizational component) and military command (individualized component). The human resources management (HRM) is functionally a organizational branch as well as a procedure, dealing with issues beyond the area of responsibility of military leaders in the chain of command. Collective bargaining, earnings, working hours and perquisities are examples of these HRM issues.

In an peace-time military organization, commanders are not able to establish "full operating command" over their personnel because of the HRM aspects. Thus, when people formulate their perceptions concerning organizational culture, they normally do not separate these two pillars of activities from each other. Further on, the individual perceptions in this era are reflected to the organizational effectiveness and commitment, job satisfaction and finally, to the organizational citizenship behaviors.

In order to study and model this dualistic mechanisms, Pillai (1999) has formulated his empirical research on the basis of organizational citizenship behaviors (OCBs) in the framework of transformational and transactional leadership. The concept of OCBs is seen here as quite final and worth-aspiration organizational outcome. In between the dualistic mechanism of influence and OCBs, a measurable criteria was needed. For Pillai, such a criteria was individuals´ fairness perceptions about organizational justice and trust. Organizational justice is a term used to describe the role of fairness as it directly relates to the workplace. Specifically, organizational justice focuses on the ways in which employees determine if they have been treated fairly in their jobs and the ways in which those perceptions influence other organizational outcomes.

In his empirical study Pillai (1999) found that transformational and transactional leadership behaviors have different impacts on subordinates´ perceptions of organizational justice, based on social and economic exchange relationships. Economic exchange is based on short term transactions, but social exchange emerges from individuals trusting that the parties to the exchange will fairly discharge their obligations over long term. Transformational leadership seems to influence procedural justice, which in turn builds trust. Transactional leadership appears to only influence distributive justice and has no impact on trust. Additionally, procedural justice is strongly linked to organizational commitment. (Pillai 1999, 19 - 20.)

The results reviewed above are significant in an military organization, which normally is not able to compete with other organizations in the era of material and physical benefits (distributive justice). Transformational leadership makes people to commit themselves, because the emphasis of perceptions is on procedural justice. On the other hand, if the leadership culture is merely transactional, the people will not commit themselves because their emphasis of perceptions is on distributive justice.

Organizations must serve leadership, not vice versa. The increase of bureaucracy in organizations is a direct result of inadequate leadership. Transformational leadership offers a leader a tool not only for the exploitation of human resources, but also for the development of the organization. As Bass (1985) writes, a transactional leader functions according to the culture prevailing in the organization, but a transformational leader can change and develop the organization's culture if he so wishes. This applies to military organizations as well. Inefficient leaders lean on their formal position, the organization and

its routines. Efficient leaders show a direction and policy to others with their behavior and they change established ways of behavior if needed.

3.4 A paradigmatic foundation for the leadership training and research

The new paradigm of leadership is first and foremost a scientific approach to leadership. A new scientific research tradition is building around the paradigm and it will not be limited only to theoretical frameworks, models and research methods; it will hopefully extend to the metascience of leadership. The view is based on the idea of experiencing leadership as active, purposeful activity in certain contexts. This way it is possible to find in leadership a temporally and culturally universal phenomenon that is called excellent leadership behavior.

Excellent leadership behavior can be modeled, it can be measured and in training programs that are based on it, leadership behavior can be developed. In relation to the objectives of an organization, leadership behavior has a two-dimensional position: it is an efficient tool to be used in the achievement of objectives, but on the other hand, it creates preconditions for the setting of objectives at high organizational levels and for the development of the entire organization - in other words, strategic level leadership.

The latest empirical research in this area has focused mainly on the modeling of excellent leadership behavior. The modeling has progressed to a stage at which an agreement has been reached concerning the hierarchical structure of the main dimensions of leadership behavior. In the factor structures inside the main dimensions there is still variation at some points, as I will review in the chapter 6. This variation may be interpreted to result from cultural or organizational differences. Therefore it is justified and logical that the application of the new paradigm of leadership to the leadership training of the FDF has not taken place by copying a finished model from elsewhere. The Deep Leadership Model (DLM) presented in chapter 7 is a model built for Finnish culture and especially for the training of military leaders. The worldwide study of the new paradigm of leadership creates a scientifically lasting foundation for the DLM.

It is typical to the research methods of the paradigm to collect information by a questionnaire built on the basis of the structure of the model. The questionnaire is used primarily as a feedback tool of a single leader. The collection of feedback is carried out as

full range feedback, in which case the leader is given feedback on his leadership behavior by his entire operating environment: his subordinates, peers and superiors. The leadership profile, which is formed from the feedback, is supplemented by the leader's self-evaluation, still using the same questionnaire. Using information obtained from the questionnaire, it is possible to statistically study the validity and reliability of the questionnaire as well as the hypothetical structure of the model in the background. In this case, confirmatory factor analysis (CFA) and programs based on structural equation models (SEM) are typically used.

Usually traditional correlative methods are used to study the connection between leadership behavior and the effects of leadership and the efficiency of an organization. The hierarchical structure of the dimensions of leadership behavior in relation to desired effects can be studied using regression analysis. Cluster analysis, among other things, is used to analyze extensive material consisting of leadership profiles.

The next step to take is the effective use of soft computing methods, like fuzzy systems, neural networks and probabilistic reasoning. All the traditional, mostly linear statistical methods can be supported by using soft computing. One practical outcome of applying soft computing will be the improved mathematical accuracy and fitness of different models, because through fuzzy systems and neural networks we are able to minimize the sum of residuals in different occasions. The models and methods improved with soft computing are more flexible than the traditional, mostly linear ones.

From the viewpoint of leadership training an essential part of the new paradigm of leadership is to separate from each other the potential of the leader and the behavior of the leader. Training is not pointed straightly to the potential (meaning perspectives) of the trainee. Instead, training concentrates on leadership behavior, critical evaluation of feedback and self-directedness. Through the principles of experiential learning, the cornerstones of deep leadership will become relevant to the trainees if they only are able to handle the personal feedback information.

The development of personal potential is seen as a life-long learning process in which a leader develops his self-knowledge with feedback information on his behavior. The development of potential has to do with changes in personal schemes and meaning perspectives; these processes take place inside the individual and they take time and

willpower, as the processes are goal-oriented. The new paradigm of leadership includes the basics of constructive conception of learning. Because the paradigm approaches the concept of leadership from the viewpoint of leadership behavior, leadership training must ensure that the concept is perceived by placing leadership behavior into wider frameworks. This assumption is supported by earlier research information on the effectiveness of leadership training. The frameworks that are used must make it possible for the leadership trainees to integrate theoretical information and their own observations to the concept of leadership in a meaningful way.

Application of the new paradigm of leadership to military leadership is not without its problems, even though there is empirical evidence of the paradigm's connection to efficiency, results and success in military organizations as well. Problems surface especially in relation to the prevailing leadership culture and the personal capabilities of leaders. I will return to the problems of application in Finnish military training in the chapter 7 that deals with the DLM. On the other hand, it must be noted that the new paradigm of leadership was not brought into the FDF as a doctrine but as a basic solution that unifies leadership training and makes it more effective. There is a significant difference between these viewpoints. The objective is that our new leadership training program is a self-piloting process which, when integrated into the training system, develops the FDF into a learning organization.

The new paradigm of leadership begins with the human being and his opportunities. People create a culture, organizations are made up of people. Conflicts take place between people. Leadership training is both direct and indirect influencing of people. Because a military organization has the opportunity to train its leaders, we have the opportunity to directly influence our leadership culture. A leadership training program based on transformational leadership requires that each military leader strive for personal development and growth. This will be important in the future, because learning organizations are made up of learning people. And in the world of change only learning organizations can succeed.

4. THE CONCEPT OF MILITARY COMMAND

The general principles of military command have not changed in the course of time. Instead, changes take place in the operating environment in which these principles are applied. With research we increase our knowledge of these principles that have held true through known history (Bass 1998b, 46). A squad leader and a brigade commander can base their leadership on the same principles, but the operating environment and other macroconcepts of military command define how these principles can produce commitment and efficiency in subordinates. The principles of leadership have to be transferred through an individual's own leadership potential and an analysis of the operating environment into the practices of leadership, i.e. leadership behavior. Leadership at the different levels of an organization requires as support different attributes and skills from individual leaders. (Army Leadership 1999, 1-3; 1-6.)

In the formation of concepts of military command, the general problem of the study of leadership soon surfaces: it is very difficult to find one concept that would be both extensive enough to describe the different sectors of leadership as well as specific enough to function as the premise for operationalization, i.e. empirical research (Yukl 1998, 5). The concept of military command cannot be defined with just one term or phrase. In this chapter I will approach the concept of military command as a multi-dimensional concept, the contents and dynamics of which are formed by certain microconcepts and the interaction between them in different areas of activities.

4.1 Contemporary conceptual change of military command

Change of the operating environment may in the future further increase the challenges of leadership if the moral and ethical justifications of given tasks is not self-explanatory for example in the era of crisis management. Peace support operations (PSO) carried out with multi-national troops have also given a push to the development of leadership training based on the experiences acquired from these operations (Jackson, 2000).

Ulmer (1999) considers that complexity will increase in military command. Ulmer, who consultates the leadership training of the U.S. Army sees leadership training of the future taking place in an environment in which:

- complex and diverse operations are carried out in politically sensitive and chaotic situations,

- the allocations of military organizations are reduced,
- competition for high-quality personnel increases,
- social respect and knowledge about the requirements of the military command remains limited, and
- the need for research increases.

Lester (2001) suggests, that the list above could be expanded with leading-edge skecticism about intervention/involvement resulting a new form of power projection. Changes in the operating environment and opportunities to apply new defence doctrines cause pressure for military leadership as well. Ulmer (1999) lists the demands set for a future military leader as willingness to take responsibility, moral courage, ability to make decisions, leadership by example, self-knowledge, situational awareness, ability to trust others and willingness to develop. According to these demands, research on how training programs based on transformational leadership could be applied to the training of military leaders is being carried out in the US armed forces.

Furthermore, the increasing development of information technology may have an effect on the means and tools of leadership more than we can even anticipate. Technological development includes both opportunities and threats from the viewpoint of leadership (Bass 1998b, 47). Information that increases and moves faster does not automatically guarantee better-quality decision-making, let alone the human dimension of military command.

The previous concept of military command in the FDF that is based on the path-goal -theory (Yukl 1998, 265 - 269) and situational leadership (Hersey et al, 1996) supports the external forms of military discipline and the leadership behavior that arises from the demands of combat situations. For example the book Sotilasjohtaja I (1990, 54 - 57) approaches leadership from the theory of social exchange that represents the transactional dimension of leadership behavior almost at its purest. The exchange theory (stick and carrot -leadership) and along with it the culture of military command that has prevailed to this day are described as follows:

> "*Traditional military command is usually seen as an authoritarian, hierarchical, disciplined and slowly changing system in which motivation is based on both encouragement and sanctions*." (Sotilasjohtaja II 1990, 41.)

Similar conception of leadership has prevailed in many other Western military cultures (Bass 1998a, 2). Correspondingly the inflexibility of a military organization is justified with the requirements of war time:

> "*On several occasions there has been criticism on the undemocracy of a military organization and the minimal influence of an individual. A war time organization nevertheless has to be capable of almost a machinelike performance*." (Sotilasjohtaja I 1990, 118.)

This quote confuses the concepts of leadership and organization. Organization, culture and leadership are separate concepts, even subordinate to each other (Schein 1992, 15). In the new paradigm of leadership an organization is just a tool of leadership, its sub-concept. Organizations must serve leadership, leadership must serve efficiency. Success and efficiency require from leadership flexibility and the ability to adjust. Military leaders have to be trained and coached to succeed in greatly varying areas of activities (Bass 1998a, 2).

On the other hand, the effect of the surfacing of the new paradigm of leadership and the constructive concept of learning is visible in the books Sotilasjohtaja I and II. For example future leadership is described in a way that approaches the premises of the new paradigm of leadership and the concept of military leader that this book strives towards:

> "*A superior has to be able, together with the members of his work unit, to analyze and interpret correctly the phenomena of the operating environment and convert those interpretations into the goals and procedures of the organization... In comparison with the current situation, leadership procedures would acquire more features of shared responsibility and decentralization. This, then, would require from everybody involved a high level of knowledge, skills and human relationships*". (Sotilasjohtaja I 1990, 67.)

4.1.1 Mission command

Mission command as a leading general principle of military command has maintained its importance throughout the history of wars, and consequently, in the training of military leaders. Oetting (1993), among others, writes about the principles and application of mission command in military leadership in his book "Auftragstaktik". In the western culture

of military leadership there seems to prevail a stable unanimity about the practicality of mission command in relation to war experiences and recent peace support operations. In several war colleges, the Baltic Defence College (BDC) being the most recent example, mission command is the main thread of training around which other subjects are built.

Jackson (2000) has estimated that mission command is the key to success also in peace support operations, and that in order to succeed, mission command requires a strong trust throughout the entire leadership chain. Spacey (2000), emphasizes the same point when writing about leadership in an postmodern military organization.

Mission command requires the entire military organization and especially its leaders to have the capability for independent and initiative action, the success of which is based on the commanders' ability to think, i.e. anticipate the events of the battlefield. As the battle area is shattered, the initiative action of even very small troops in built-up areas and chaotic situations can be very significant to the end state of the battle.

Initiative can be defined as ability and willingness to take action even though there is no order or clear instructions concerning the issue, plans fail or the situation becomes unexpected. Initiative constantly guides the military leader to seek better procedures, think about what should be done and function without orders. When sensible reasoning that is directed towards the common goal is integrated into initiative, it is possible to talk about disciplined initiative, which is a characteristic of a good military leader. (Army Leadership 1999, 2-48;2-50.)

From commanders mission command requires developed conceptual thinking at the level of personal potential as well as the ability to exploit their staffs in anticipatory decision-making. Beyond these demands to the potential of a military leader, leadership behavior must support the carrying out of mission command: mission command does not work without trust between subordinates and the superior. Because activity that is sensible considering the overall goal requires that lower leaders know the commander's concept of operation and prepare for different options, "ordering" alone is not enough. Battle rarely progresses in such a way that the battle plan drawn up based on a decision made earlier works without alterations.

It is necessary, time and situation permitting, to go into the different possibilities of how the battle could turn out, and the commander must get his subordinates to think and anticipate

as they lead. The significance of thinking is emphasized by the fact that the commander from time to time asks his subordinates' opinion and view on the development of the situation and on potential threat factors.

During peace time military leaders create through their behavior the preconditions for war time activities. Between these two situation dimensions there is always one permanent factor: the military leader. *What kind of military leader combines the demands of both war and peace time?* One's own natural personality is the only lasting premise of leadership behavior. However, development is always possible.

Development as a military leader stems in the new leadership training program from the acceptance and internalization of the principles mentioned above. The military leader must profoundly think about these issues: *how do I train independent and initiative soldiers? How do I coach my sub-leaders in the principles of mission command?* The answer can be found in leadership behavior that is in accordance with the new paradigm of leadership.

Deep leadership has points of contact with conceptual thinking as well. In the development of leadership behavior the foundation of the development of necessary skills related to self-knowledge and self-evaluation is in the area of conceptual thinking. It is also possible to speak of intrapersonal skills (Goleman 1995). Military training has traditionally aimed to develop the skills of conceptual thinking especially in the teaching of tactics and operating skills. From the viewpoint of the entity of military command it is therefore important that in the area of tactics and operating skills the premise will also in the future be the principles of mission command.

4.1.2 The changing concept of military command

With the new leadership training program of the FDF, the move has been made not only to a new millennium but also from the conditional to purposeful actions in the training system of military command. Contents-wise there has been a shift of emphasis in military command from the "stick and carrot" leadership of the exchange theory (transactional leadership) towards a more flexible and efficient deep leadership (transformational leadership). The emphasis must be spoken of because transactional leadership will be needed also in the future: the question is mainly about which one of these two leadership dimensions is more dominant in the behavior of a military leader.

As Bass (1985, 24) states, a transactional leader functions according to an organization's prevailing culture, but a transformational leader can change and develop organizational culture if he so wishes. Culture is unavoidably an important part of an organization, and leaders have many ways to communicate for example the key values of the organization. Implicit means lean on the value foundation, traditions and rituals that rise from history. Training programs, among other things, belong to strategic means (Siehl & Martin 1984, 227 - 240). The significance of culture is great in military organizations, as well. Inefficient leaders lean on the organization, its routines and their formal positions. Efficient leaders show with their behavior the direction and policy for other people, changing established procedures if need be.

Larger research resources than perhaps ever before are targeted to define the concept of military command worldwide. Changes in military command's operating environment and on the other hand the view of the new paradigm of leadership have gotten the researchers of military command moving. It is no coincidence that transformational leadership in particular has been studied especially in military organizations (Popper et al 1992, Bass 1998a; Bass & Avolio 1998a). However, transformational leadership offers tools mainly for the study of leadership behavior: a wider framework is needed in the defining of the concept of military command.

The conflict between the needs of an individual and the goals of an organization seems, from a human point of view, to be at its greatest in a combat situation. Solving and controlling this conflict is one of the key tasks of military command. Gal (1987) notes that in the future humans will act in combat the same way as before even though technology changes the image of battlefield. The significance of the human factor in combat remains: a soldier still has to attempt to reconcile his need for self-preservation, his most extreme feelings, his sense of honor and his attempt to reach the goal of his own group. Due to these reasons, *commitment* has become in the new culture of military command the key concept that describes the goal of military command. Commitment is seen as the basic factor of action competence, initiative and willingness to fight. (Bass 1998a, 20 - 21.)

Like Burns (1978), Gary Yukl (1998, 6-8) sees that leadership can be measured as an entity if it is possible to define the concept of the efficiency of leadership. However, there are numerous criteria for efficiency in research and practices. The measuring of efficiency is furthermore influenced by the fact that some of the effects of leadership are direct and some are indirect. Therefore the analysis of the effects of leadership, i.e. efficiency,

should be seen as a causal chain. The further along in the chain one is from the starting point, the longer it takes for the effects to surface and the more intervening variables are encountered. From the viewpoint of leadership, the reliability of measuring decreases as the distance increases, as Figure 9 shows.

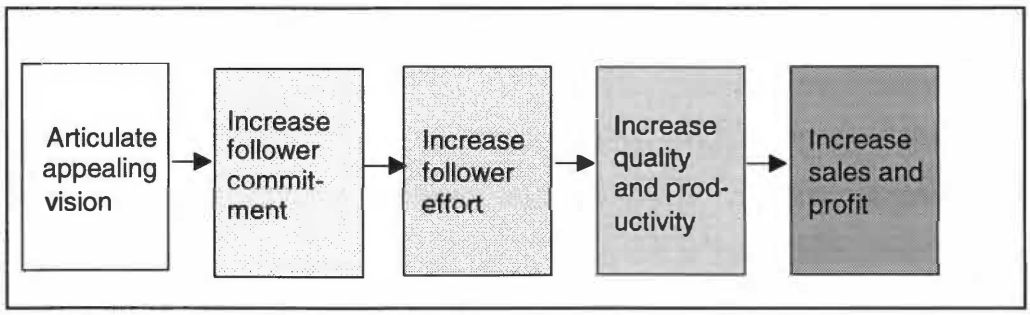


Figure 9. The causal chain of the outcomes of leadership (Yukl 1998, 7)

The starting point of the leadership chain is the communication of the shared vision and goal in the organization. The vision is an image of a future state worth pursuing. It is a state the entire organization is wanted to reach. A functioning vision is deliberately "vague" and extensive so that it would not have to be constantly changed. On the other hand, the vision bust be reachable and with success it has to be able to be replaced with another, more ambitious vision. (Åberg 1997, 46 - 50.) The entity of building and communicating a vision also includes the organization's internal chain of values. Yukl's assumption about the chain's first link corresponds well to the basic assumptions of transformational leadership.

Commitment is, according to Yukl, a good criterion of the effects of leadership because it is the first step in his causal chain. Commitment is about an individual personally accepting the organizational goal, his own duty and the responsibility related to them. It has been noted that commitment improves if an individual can participate in the decision-making process related to goals and duties (Åberg 1997, 153). The time lag of commitment is not too long and there are as few intervening factors between a superior and a subordinate as possible. From the viewpoint of the formation of theory, it is justified that military command strives towards leadership culture that makes subordinates commit themselves. This, then, requires transformational leadership behavior.

As a conceptual entity, military command is changing, even though the basic factors and mechanisms of leadership have not changed much in the course of time. Change is visible in the operating environment and is being reflected to the definition of the concept of

military command, the theoretical study of military command as well as the training of military leaders.

4.2 Western views on the concept of military command

With more and more extensive efforts, researchers attempt to perceive and define the concept of military command. Further incentive for these attempts has been given by recent peace support operations (PSO) and the supporting Partnership for Peace (PfP) activities in which the development of the concept of military command and training programs has been found important. There is a need to enhance learning in this era (Andersson & Johansson, 1999).

Canadian researchers Pigeau and McCann (2000) have developed a three-dimensional model, the basic idea of which is to outline especially the concept of commandership in military command. The three dimensions of the model are authority, responsibility and competency. The basic idea of the model shown in Figure 10 is that its three dimensions should be in constant balance in relation to each other. For example a leader's position with too much responsibility and authority combined with lacking personal competence will probably result in leadership problems in the operating environment. In an opposite case (a commander has too little responsibility and authority in relation to his competence), the result is a drop in the commander's motivation and dissatisfaction with the duties offered by the military organization.

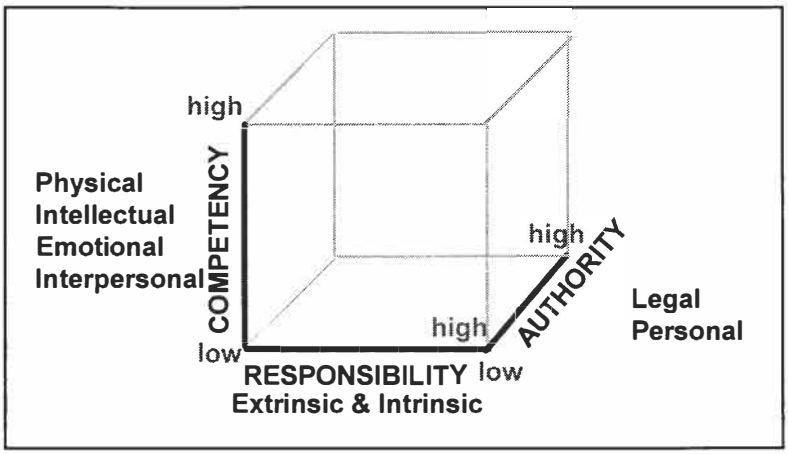


Figure 10. The command capability space (Pigeau & McCann 2000, 8).

Pigeau and McCann suggest that their framework offers a practical tool for the study of the structure of military organizations, the significance of traditions and culture in military command, leadership selection, leadership training and career planning. It is nevertheless

a purely theoretical approach to military command. The researchers do not present their observations or conclusions on the application of their framework on for example leadership training. Instead, they call for international cooperation in research for the refinement of their framework and its empirical testing. Action research is also possible in the near future in a context of PSO's and international cooperation related to them.

In Great Britain as well, military command is approached through three-dimensional models. The aspects of command are leadership, decision-making and control. The three components of command are moral (human), physical (technical) and conceptual (doctrine). In the command system, the aspects and components of command are supported by the command support organization which exists to pass and process information and provide advice (Breakwell 2000; Jeffery 2000; Spacey 2000.)

The aspects and components are seen to be in constant interaction with each other. Control is equated with management. The task of a military organization is to support the realization of these concepts in military command. The relationships between the concepts and their significance in leadership changes when moving from one level of leadership to another. The most important levels of leadership are battle command and high command. In battle command leadership is direct, while in high command leadership is indirect.

Spacey (2000) calls for the need of a clearer definition of the aspects of military command and on the other hand the study of the strong interaction between them. In globalizing research the difference of concepts in various languages combined with cultural differences creates a need for a basic study that takes into account the change in the operating environment and from this the development needs directed at military command. Spacey considers that the culture that prevails in military organizations has a strong effect on the practices of leadership.

Breakwell (2000) has studied military command especially in PSO´s from an organization-oriented viewpoint. She approaches the efficiency of military command with emphasis on the operating environment and organization, in which case military command is affected at least by:

- the nature of the conflict,
- the structure and routines of one's own troops,
- preparations, and

- the clarity of the task and procedures.

According to Breakwell's framework, the before-mentioned components have an effect on a military leader's workload, the clarity of his duty and the stress he experiences. To the outside, the effects show especially in the quality of a military leader's decision-making, his mental stability and the number of mistakes. In defining the efficiency of military command, this framework considers the interaction between the operating environment, the organization and a military leader to be the most important. Jeffery (2000) suggests that from a scientific viewpoint, the concept of military command has in the past years changed considerably. The practical competencies related to military command have not changed much according to Jeffery, but:

> "*An understanding of what military command is, how it works, and the ways in which people learn to apply it has shifted.*" (Jeffery 2000, 3.)

In her research project related to the armed forces of Great Britain, Jeffery ended up operationalizing the concept of military command with three basic dimensions, which are personal competencies, interactive skills and cognitive skills. The study's premise was that the modeling of these dimensions should form a tool that supports development as a leader, carried out according to the principles of full range feedback. Competencies and skills should therefore be based on behavior being observed and its measuring and they should also be sufficiently universal. On the basis of his extensive analysis, Jeffery ended up with an approach that is close to the basic assumptions of transformational leadership (ibid., 7).

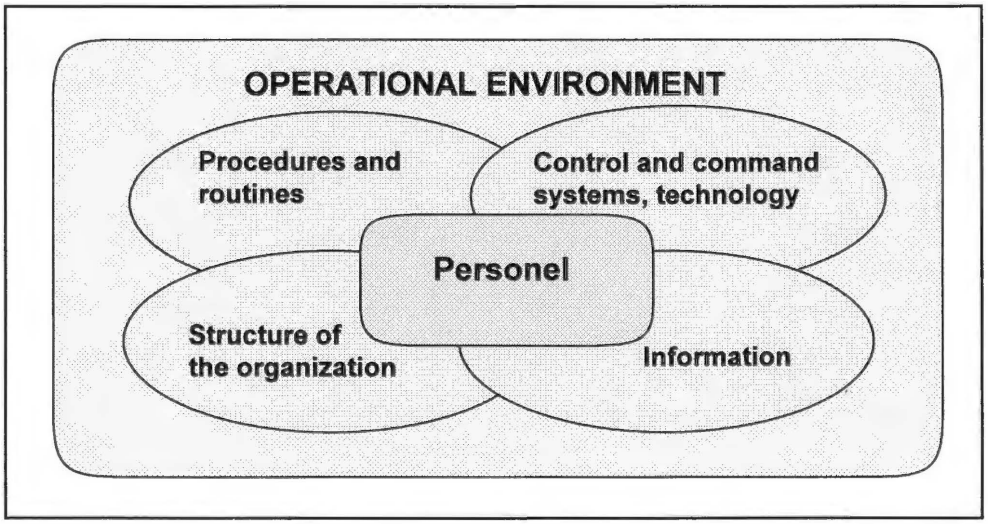


Figure 11. The framework of military command (Demosthenes 1998, 4).

The concept of German military command is characterized by two significant basic policies: the attempt to apply in all leadership the principles of mission command (Auftragstaktik) and on the other hand the conceptual and practical compatibility with NATO's operating framework. The change in the operating environment - the development of information technology, the effect of the media and the special features of PSO´s - has risen to an important position in the conceptual analysis of military command.

As shown in Figure 11, in the framework set by the operating environment and the situations, the sub-concepts of military command include the structure of an organization, the managerial routines and procedures, information and the people within the organization. (Demosthenes 1998, 1 - 4.) Military command is not dealt with only through the traditional levels of leadership, but increasingly through the effects of military command. With the changes in the operating environment, military command has become more complex, causing expanding demands on military leaders as well. From the viewpoint of leadership training, the concept of military command is analyzed in the German training system as an entity that includes the personality of a military leader, the internalization of the basic essence of an officer's profession, competencies, professional skills and knowledge and interactive skills.

The different elements presented in the Figure 11 are in constant interaction with each other. Military command is defined as an entity born out of the quality and interaction of the elements. The structure and routines of an organization create a foundation for the traditional management process, the phases of which are assessment of the situation, planning, execution and control. The framework of German military command is markedly organization-centric. A more individual-centric view of military command is used in leadership training.

The most extensive uniform overall description of military command and leadership training is the new leadership doctrine FM 22-100 of the United States, Army Leadership (1999). The purpose of the doctrine is to provide a theoretical framework applicable to all areas of activities for the training of military leaders. The doctrine is also meant to act as a premise for development as a leader, providing a theoretical foundation for the measuring of leadership, evaluation, the guidance of development, the syllabus for various institutions and the self-piloting development aspirations of military leaders.

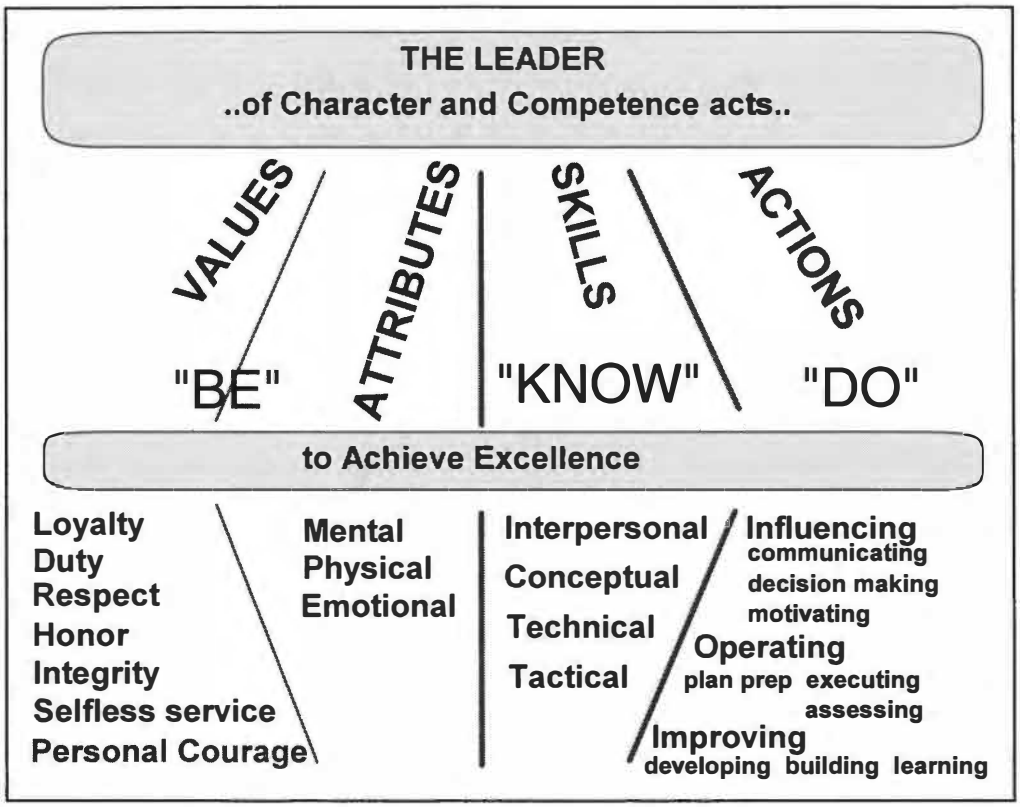


Figure 12. The Army Leadership Framework (Army Leadership 1999, figure 1-1).

The doctrine and the respective framework shown in the Figure 12 emphasize theory, because despite its purpose, it does not include concrete tools (feedback and evaluation meters) for the needs of development as a leader. The doctrine approaches military command by defining the following concepts and their contents:

- values to be pursued,
- the person of the military leader and the attributes required of the leader as a part of a personal style of leadership,
- the purposeful development of an organization and individuals,
- the three basic levels of command,
- the four central skill areas of military command applicable to all levels, and
- descriptions of leadership behavior to be pursued at each basic level of command.

The three sub-concepts of military leadership presented in the Figure 12 are the personality of a leader ("I am"), professional skills ("I know") and activities ("I do"). For the personality of a leader, the doctrine focuses on values as well as the required potential. Professional skills are defined with the four central areas of competence. The three main areas of activities are influencing other people, controlling the leadership process and the

continuous development of activities. All of these sub-concepts influence each other. The doctrine defines the concept of military leadership as follows:

> "*Leadership is influencing people - by providing purpose, direction and motivation - while operating to accomplish the mission and improving the organization.*" (Army Leadership 1999, Ch 1/3.)

Influencing people takes place through spoken communication as well as through a military leader's own example. Communicating the purposes of the activities is above all justifying given orders, showing a connection to a common goal. Showing a direction is clarification of the rules of the game, proportioning things and establishing appropriate procedures. Motivation guarantees the efficiency and initiative of human efforts. Challenging tasks motivate, but they require a military leader to support and coach his subordinates. The efficiency of activities requires a direct, swift and decisive grasp on leadership. The continuous development of an organization includes the logical attempt related to all activities to learn from mistakes and acquire new information. (Ibid., Ch 1, 1:7-1:20.)

The doctrine defines three basic levels for military command: direct, organizational and strategic. Direct military command is leadership of the front line, face to face with all subordinates. At this level a leader can make observations of the situation and the results of activities. The level of direct military command extends, depending on the situation and the quality of the troop in question, even to the level of a battalion.

At the level of organizational leadership, hundreds or thousands of people are led. Leadership is mainly indirect and it takes place through the closest subordinates. In the handling of information and in the execution of decisions, a military leader is supported at this level by his own headquarters. The basic requirements of leadership are the same as at the level of direct leadership, but complexity, uncertainty and the unforeseeable effects of decisions increase. The level of organizational leadership extends upwards for one or two levels of leadership from brigade level.

Strategic level leadership is the highest level of military leadership and it covers the high command of the Defence Forces and defence administration (immediate political decision-making). The most important duties of strategic level leadership are the creation and communication of a vision, the outlining of strategic choices, the defining of the

structure of an organization, the allocation of resources and the creation and maintenance of potential that corresponds to the challenges of the future in the entire organization. The vision is always public information, but strategic plans may be classified (Åberg 1997, 65).

The rapid change of the operating environment creates much uncertainty and complexity in leadership. The dimension and significance of the decision-making of a strategic level leader are great, having an influence on the activities of even hundreds of thousands of people. Strategic level leadership is almost completely indirect, so the selection and selection of the closest subordinates is very important to leaders at this level. (Army Leadership 1999, Ch 1.)

4.3 The conceptual model of military command

The conceptual model of military command for the FDF presented in this section has been constructed from the viewpoint of leadership training and development as a leader. As such it also supports the needs of research, especially from the premises of the new paradigm of leadership. The validity of the framework can be evaluated through a question, whether is provides an opportunity to examine leadership at different levels of duties in both war and peace time environments.

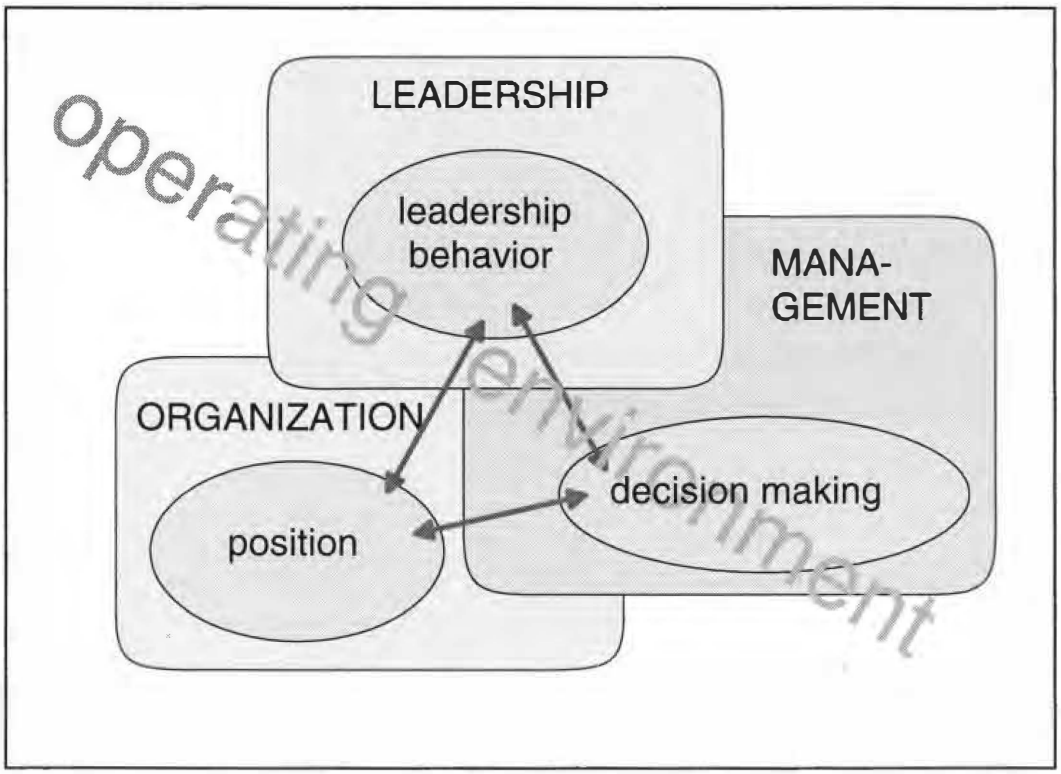


Figure 13. The conceptual model of military command in the FDF.

The framework has taken into account those directions of international research that have a similar conceptual foundation and, on the other hand, material in accordance with the new paradigm of leadership, as presented in the next chapter.

The basis of the model shown in the Figure 13 is the general framework of leadership, that will be reviewed more detailed in the chapter 7. The basic sub-concepts - position, decision making and leadership behavior - are concentrated from the more general concepts of organization, management and leadership. The model attempts to reconcile the different sub-concepts and their interaction of the concept of military command. On the basis of the model, the three sub-concepts can be brought forward to act as the foundation of the conceptual analysis of military command. The relationship between and the significance of these sub-concepts vary as the operating environment changes. It has to be noted that the complexity of leadership is not born out of the contents of these sub-concepts, but from the multi-level interaction between them in various operating environments.

Through the Defence Forces' new leadership training program and the evaluation process related to it, it has been noted that as broad consensus as possible, when defining the concept of military command, is necessary from the viewpoints of both training and research. So that there would be preconditions for scientific study, the concept of military command must be valid in its environment of use, meaning it is acceptable and understandable among the people who use the concept. Furthermore, the concept of military command should be structurally valid, i.e. the concept can be logically fitted into a larger theoretical framework (Pigeau & McCann 2000, 1). It is important for the understanding of the concept of military command that in addition to the analysis of the contents of sub-concepts, there is also an attempt to outline the relationships and interaction between these concepts as external factors, that is the operating environment, change (Breakwell 2000, 2 - 3).

As a concept, the position of a military leader represents a formal organization as well as stability. Decision-making and leadership behavior are active, functional concepts. The formation and scientific study of the concept of military command is not possible in practice unless the complex interaction between these three sub-concepts is taken into account in different operating environments. In the following sub-chapters, I will analyze the respective concepts of the model of military command excluding leadership behavior, which has already been defined in the chapter 2.

4.3.1 The organizational position of a military leader

The position of a military leader is based on a formal, hierarchical organization. The structure and routines of an organization that are based on the ultimate justification for the existence of the organization also define the position of a military leader. Through the position of a leader, military command includes characteristics that are unique and appear only in military organizations, especially at the higher levels of leadership (Ulmer, 1996). In general, command is the exercise of both leadership and management with the power to discipline (Lester, 2000). Commandership, i.e. the leadership of a group capable of independent tactical or operating tasks, has its own special characteristics (Sotilasjohtaja III, 1990).

Military leaders are primarily responsible for the success of their own organization, but responsibility extends even further, the level of the entire society. Society, like all members of a military organization, expect from a military leader not only efficiency but also the preservation of basic values and caring for personnel. This way the concept of military command also includes a great deal of trust given to a certain individual.

4.3.1.1 Organizational levels of leadership

The position of a military leader can also be determined through the three organizational levels of leadership. These levels 1) battle-technical (direct level), 2) tactical/operating (middle level), and 3) strategic (high level).

Military command at battle-technical level is front line leadership, face to face with subordinates. At this level, a leader can directly make observations about the situation and the results of activities. The level extends, depending on the situation and the quality of the troop, at least to the level of a troop the size of a company. The corresponding peace time level of leadership is the direct level leadership, the main task of which is to train soldiers and units with the aim of high action competence. The training personnel can make direct observations about the efficiency of the training, but only on a relatively short time span.

At tactical/operating level, hundreds or thousands of people are led from battalion level all the way to army-corps level. Leadership is mainly indirect and it takes place through closest subordinates. At this level a military leader is supported in the handling of

information and the execution of decisions by his own headquarters. The corresponding peace time level of leadership is the middle level leadership, the most important tasks of which is to utilize the given resources through the process of day-to-day readiness, logistics and training in order to reach the vision.

Strategic level leadership is the highest level of military command. The dimension and significance of the decision-making of a strategic level leader is great, having an effect on the activities of even hundreds of thousands of people. Leadership is almost completely indirect, so the competency and selection of the closest subordinates are important to leaders at this level. During times of war the task of the strategic level leadership is to lead total defence. During peace-time, one of the main tasks is to create and communicate a vision that derives from the activities of middle level leadership.

Strategic level leadership as a concept is a tool with the help of which an attempt is made to illustrate thebasic tasks of military command especially in the Defence Forces of peace times. The contents of the concept have been studied and defined in many recent publications that have also incorporated commercial concepts of strategy. If the goal is to find a definition that is useful to both research and training, it is probably best in military leadership to rely on the starting points of military theory. The definition is then as follows:

> *Strategic level leadership is the anticipatory and comprehensive process of the highest leadership of the Defence Forces that takes into use and directs optimally the resources that society has allocated for the attainment of the vision that is based on the mission and doctrine of the Defence Forces.*

Strategic leaders understand the different levels of leadership and the distinct environment in which they work. They establish an effective working relationship with their military and political supervisors. these individuals are militarily and diplomatically proficient officers who sustain the Defence Force culture, envision the future, convey their vision to a wide audience. These leaders must think in multiple time domains and operate flexibly to effect positive mission outcome. (AF Doctrine 2001, 8, Draft copy.)

The capabilities for strategic level leadership (especially in general staff officer training) are created by developing the ability of the trainees for *strategic thinking* that, according to Mintzberg (1991), is simultaneously:

- looking ahead into the future, but also back into the past,

- looking from above and outside, like seeing a forest from a helicopter, but also looking from below and inside from the roots of the trees,
- looking past the usual and seeing what is usually not noticed or cannot be interpreted in everyday life, and
- seeing alone is not enough; a real strategist makes sure that things really happen.

In order to support the development of strategic thinking, extensive research and training built on the research is needed. It must be noted that strategic level leadership and strategic thinking are not synonyms: a military leader can, as he must, apply his capability for strategic (comprehensive and anticipatory) thinking to everything he does. For reasons of clarity, strategic level leadership as a concept should be limited to a concept that describes the duties and essence of the highest level of military command.

The position of a military leader has to be approached through the corresponding level of leadership. Each task level has its own special features that affect the duties of the leader and the balance of the sub-concepts of military command. The significance of leadership, i.e. leadership behavior, as a part of the entity of military command remains important at all levels, even though the methods of influence change from direct to indirect ones. The new leadership paradigm includes an assumption that leadership, especially leadership behavior can be defined and modeled in an universal way, despite the operating environment. However, there are such occasions in which the balance between the three sub-concepts of military command is skew. The ultimate example is military leadership at the direct level in battle, under enemy fire.

When comparing the position of the military leader to a corresponding position in a civilian organization or company, it can be noted that the legal and moral demands of military command are remarkably high. According to a hierarchical system, military leaders are often seen as representatives of the entire system: they give a face to a military organization and with their leadership behavior they define the prevailing leadership culture (Army Leadership 1999, 1-60, 1-61).

4.3.1.2 Authority

Thus the military leader is not just a person, but through his position, responsibility and duties he is a part of a formal organization and its bureaucratical structure all the way to

the level of state administration. An organization provides a military leader with resources and tasks. The position of the military leader includes a great deal of formal power. Power is essentially included in social interaction according to several empirical studies (Helkama et al 1999, 211). The concept of authority is also related to the concept of power. Authority is one of the basic concepts of influencing other people. Authority is born out of an external (based on position) and internal (based on a military leader's personality and behavior) source (Sotilasjohtaja I 1990, 60-61).

The stem of the external source of the authority of the military leader consists of laws, statutes, regulations and standing orders, in which the organizational frameworks and resources of military command are defined. Through a military organization, society hands power to military leaders at commander level so that they can also maintain discipline and punish. Elsewhere in society this is the duty of the justice system and thus exceptional compared to all other organizations. During war times these powers extend even further and the right and responsibility to make decisions given to a military leader reaches a level at which the lives of soldiers are decided on.

One interesting detail of military command is that the power to punish subordinates given by formal position and organization are very wide compared to leadership in a civilian organization. The power and resources to reward subordinates, on the other hand, are much more limited than in the civilian sector. This disparity reveals a great deal about the traditional values and thinking of society, also when it comes to military leadership (Pigeau & McCann 2000, 6).

Especially in the private civilian sector the arrangement in question is significantly different today. This lack of balance emphasizes the use of force and distorts the perception of the concept of efficient military command on theory as well as in practice. Because of the demands of a war time environment, it is difficult to strip the military leader of even some of the powers related to his position, but especially in peace time service, the military leader's chances of rewarding and encouraging his subordinates should be developed so that a state of "transactional balance" could be reached.

The inner source of the authority of the military leader is the personality, professional skills and leadership behavior of the leader. People in a military organization form an image and a perception of a military leader's personality directly and indirectly through his leadership behavior. Professional skills culminate in decision-making. Endogenous authority is thus

something other people have given to the military leader - respect and trust - something that according to research has significant connections to the motivation, the cohesion as well as the morale of soldiers (Gal & Manning 1987, 370 - 376). Internal authority cannot be externally ordered, directed or asked for. In the literature dealing with military command one of the most interesting dimensions of endogenous leadership is time: the development of endogenous authority in subordinates and peers usually takes a relatively long time, but it can be lost in one moment.

As a conclusion it can be noted that from the viewpoint of influencing other people, the concept of authority is connected to the framework of military command. External authority is based on the position of a leader and an organizational foundation and it is fairly lasting in nature. Endogenous authority is based on both a leader's decision-making and leadership behavior, and it is functional as well as dynamic in nature and changes relatively much. The sources of authority should be in proportion to each other in each operating environment.

4.3.1.3 Responsibility

In the military, as in any large public or private organization, those who exercise substantial power and discretionary authority must be answerable for all activities assigned or entrusted to them - in essence, for all activities for which they are responsible. Regardless of whether those actions are properly executed and lead to a successful result or are improperly carried out and produce injurious concequences, the leader is still responsible. (Sweetnam 2000, 62.)

When an individual accepts the position of the military leader, he also accepts the responsibility that comes with the position and related tasks. The concept of responsibility can be analyzed like the concept of authority: it can be divided into an external and an internal element. At higher levels, the external responsibility of military command includes responsibility for results and duty to account. This is something that military leaders should understand and value as a part of military command. At all levels of military command, external responsibility includes the validity of the power exercised on the basis of position and the proportioning of this power to the situation in question. According to the hierarchical nature of a military organization a higher military leader has more power and authority than his subordinate. From this principle, it logically follows that the control of the carrying of responsibility takes place directly in the chain of command.

Not only moving up the chain of command, the concept of responsibility is also present in the relationship between the military leader and his subordinate and is closely connected to endogenous authority. The military leader must responsibly carry the trust and loyalty shown by his subordinates and with his leadership behavior show that he can stand up to the responsibility. If subordinates feel that the relationship of responsibility has been broken, it means that influencing opportunities also decrease. The external element of responsibility is thus connected to the expectations that other people in the chain of command, both above and below, place on the military leader based on his formal position. (Pigeau & McCann 2000, 3 - 6.)

The internal responsibility of the military leader is related to how he commits himself to the demands set by military command and the tasks given to him. Internal responsibility is built from the level of the deep structures of the human functions of an individual, of values and the schemes that guide activities. Scheme means the social knowledge that is stored in our minds either as human schemes or event schemes, i.e. scripts (Helkama et al 1999, 118 - 127). Internal responsibility is thus the foundation of military command, acting as a source of the leader's motivation and the activities that follow from it more than external responsibility (Pigeau & McCann 2000, 7).

The demands of war time operating environment require that decision-making remains leader-centric. With the concentration of decision-making, the responsibility related to decisions and their execution is also concentrated on the military leader. The paradox of leadership is the most visible in military command within the sphere of the concept of responsibility: in combat the responsibility for the task and, on the other hand, for people, i.e. one's own subordinates, run into each other violently. The military leader must be able to control this paradox and find a state of balance between different elements so that the preservation of trust could be guaranteed.

4.3.1.4 Task and discipline

The culture and principles of activities of a military organization compress, from the viewpoint of the position of the military leader, on a task and its fulfillment. A task can conceptually be considered equal to an order and the significance of order in military command will be great in the future, too. The concept of military discipline has been tied particularly to order and the relationship of authority with the closest superior:

> *"A soldier is obliged to be absolutely dutiful to his superior and to fulfill punctually the orders given by the superior. Before a superior gives an order, he must consider its lawfulness, applicability and the possibility of performance so that he does not need to change the order uselessly. He is obliged to oversee that the order he has given is followed and is responsible for the performance of the order and its consequences."* (YlPalvO 1995, 67;74)

Tasks and orders are strongly tied to the person of the military leader in the entire chain of command. A military organization also expects "absolute dutifulness" to a superior. This principle has a great effect on the relationship between position of the military leader and leadership: an undivided responsibility for the fulfillment of tasks and orders is personified almost to an extreme level. Responsibility for a task and the absolute obedience of a subordinate would in practice require faultless decision-making and leadership activities, which from a human point of view does not seem possible (Marshall 1996, 101). The culture of orders and responsibility that prevails in military command contains an in-built paradox, because elsewhere in the "General Instructions of Military Service (YlPalvO)" it is ordered that:

> *"If the order of a superior is such that the subordinate would have to break a law or his obligation of duty while carrying out the order, he must inform the superior giving the order. If the superior nevertheless repeats the order, the subordinate must refuse to carry it out."* (YlPalvO 1995, 75.)

How does an individual reconcile a possible conflict between absolute dutifulness and the obligation of duty? Absolute dutifulness refers directly to the closest superior. Obligation of duty refers more vaguely to the overall responsibility that the military leader has through his position. The Army Leadership 1999 doctrine deals with this conflict of loyalty through an example, in which the wish of the closest superior (loyalty) and the value foundation of a military organization (obligation of duty) are in conflict (Army Leadership 1999, 4-37; 4-40). Through examples, the doctrine attempts to teach how in the end moral values, i.e. the obligation of duty, should be the decisive factor, even if it meant violating the loyalty requirement towards the closest superior.

War history knows several examples of how the conflict in question really exists. One of the examples that most often surfaces in literature is a conflict between a task given to the

military leader and the human losses that will probably result from the performance of the task. In a case like this, the obligation of duty of the military leader who received the order culminates in responsibility for people. A solution to the conflict can be found only through the entity of military command, meaning the opportunities related to high-quality decision-making and leadership behavior that I will analyze next.

4.3.2 Decision-making as a key concept of management

The general process of planning, decision-making and executing is the level of activities usually spoken of as management. The origin for the concept of management is the Latin "manus", meaning hand. This refers to the handling of matters. Juuti (1995) considers it essential in the concept of management that they can be dealt with on the basis of pre-defined standards. This, according to Juuti, also means that management is best suited to situations in which the surroundings do not change very quickly. The managers are at their best in stable situations and when the activities of the organization are being controlled.

Control of the management processes and the professional skills required by tasks always belong to the basic potential of a leader. However, certain military leaders are not capable or willing to expand their command towards people. These kind of leaders "remain" only managers, without being able to take advantage of the human resources of their organizations. Kotter (1988) describes the new paradigm of leadership in this view:

> *"Management is in principle a process that is responsible of achieving results in key sectors... Leadership, on the other hand is a process that has constructive change as its duty. Leadership usually includes a vision and a strategy to achieve that vision. They have to be communicated to people si that they understand the goal and believe in it. Working conditions have to be such that they encourage and motivate people to clear all obstacles from their way to achieve the goal. This way efficient leadership creates change that benefits the entire organization."* (Kotter 1988, 7 - 12.)

Kotter deals with leadership using familiar concepts. He does not separate the routines and processes of an organization, but concentrates on describing the significance of leadership in relation to organizational effectiveness. The view of the general framework of leadership is the practical viewpoint of leadership training, in which case it is justified to

separate from each other the repetitive, standardized and routine-like arrangements and the control of the flow of information related to the management process and decision-making based on situational factors.

Decision-making is the most central concept of management processes. The management of tasks and activities related to a management process requires analytical handling of information, logical assessment of the situation, efficient decision-making and good control of the use of time. Efficient decision-making is based on developed conceptual thinking and a preparation process in which thinking is creative and intuitive. After the receiving of the mission, mission analysis is a basis for the course of action development, analysis, comparison and approval (FM 101-5, 5-1;5-26), to which is related the anticipation of the speed and direction of change. The handling and analysis of information must be organized so that the information available allows the comparison of courses of action drawn up for the performance of a task.

Decision-making functions as a divider in a management process, separating management into preparation for decision-making and the execution of the decision. Decision-making is followed by detailed planning and execution with orders and instructions. Performance standards, reporting system, performance meters and analysis methods are a part of control and through them the connection between the goal of activities and the performances is evaluated and more information is produced for the management process (Korpela 1992, 32 - 41).

In an efficient organization decisions have to be made and they have to be committed to. Decision-making is typically a cognitive process that in military organizations will remain the task of a leader and commander because of the demands of war time. General requirements that operate on all levels of leadership include:

- efficient use of time as the premise of decision-making,
- concentration on large issues, the control of entities, and
- the ability to make decisions in all operating environments and situations.

Already it has been suggested that military command requires from an individual great ability to adapt and adjust (Sotilasjohtaja II 1990, 43). One part of this adjustment to the requirements of the area of activities is the ability to make decisions in a way that is suited to the particular situation. The quality of decision-making is affected the most by the

time available, the handling of available information and the need to make the rest of personnel commit themselves to activities required by the decision.

In military command the time used for decision-making can vary from the strategic level of peace time (months, even years) to the battle-technical level of war time (seconds, minutes). At the lowest level of military command the difference between peace time and war time decision-making is most significant. Quick and efficient decision-making at the direct, battle-technical level requires thinking based on leaders´ own observations, professional skills and as various combat-related schemes as possible that are nevertheless realistic. In peace time training environment there is usually decisively more time for decision-making even if time is not uselessly wasted during decision-making.

When the military leader is preparing a decision, the first thing he has to do is to find out how much time he actually has available for decision-making. This decides the process in which the decision should be made. The principle is that time must be used efficiently in decision-making as well. The military leader must have a flexible ability to make decisions both intuitively and in a prepared manner, for example by comparing prepared courses of action.

On the other hand, the fact remains that if for example on the war time tactical level it is possible to follow the principles of anticipatory management that are soon presented, it may not be necessary to resort to intuitive decision-making at all, at least not on the operating and strategic levels. (Bass & Avolio 1994, 117 - 119.)

4.3.2.1 The handling of information

The decision-making of a military leader becomes more complex as the level of leadership increases. Already at tactical level decision-making may include much complexity and the information available may be vague or conflicting. In everyday speech information means "raw information": individual observations or interpretations on the operating environment and the people functioning in it that the military leader makes through his own observations or different communications systems. These observations or interpretations may sometimes be untrue but they are always tied to time (Fiske 1992, 23 - 31). Only through handling comparison and analysis does information become knowledge that supports decision-making. In most cases there is plenty of information available in the

future battlefield. Information must therefore be further refined, synthesized into larger entities, conclusions and various options.

Research related to the cognitive attributes of a human being provides a foundation for the evaluation of the significance of the handling of information, knowledge and options as a part of management process and decision-making (Adair 1984, 120 - 122). Research has also been done so that the changes caused by stress and fatigue in these attributes have been taken into account (Castro et al 2000). An individual human being has very limited attributes to handle information and stress further reduces them. The military leader must therefore exploit in a maximum way the people in his immediate operating environment in order to produce from information such entities that there is an actual premise for decision-making. Upwards from the tactical level, the military leader has at his use a headquarters for this purpose. At direct level the military leader must, situation permitting, lean on his vice-leader, subordinates and peers when he is preparing his decision.

The change in the operating environment for military leadership includes all the means and tools of information warfare. The ultimate objective of information warfare is to have an disabling impact to the military leader as a human being and as a decision-maker. In a military organization a leader is always a part of large network, and this network is also a target for information warfare (Heiskanen 2000, 28 - 29). Although the tools of information warfare are often among the most advanced products of electronical technology, the goals and means are directed against human mind. When preparing ourselves to effective handling of information in order to support the decision-making by the military commander, we must consider also all the aspects of modern information warfare.

4.3.2.2 Commitment

According to research, people’s commitment to decisions and their execution improves significantly if the people have been allowed to participate in the decision-making process (Åberg 1993, 47). Apparently it can be thought that listening to subordinates during decision-making crumbles the authority that comes with the position of the military leader and especially its external dimension. However, research has shown that the internal dimension of the leader's authority is strengthened: subordinates' respect and trust increase. In a military organization this model of decision-making has been considered even a show of "weakness" and the need for completely leader-centric decision-making

has been justified with the needs of war time. This is again one of the paradoxes of military command. (Gal, 1985.)

Including subordinates and peers in the decision-making process is a question of time. If there is none, decision-making must take place in an emphasizedly leader-centric manner. The quality of the decision is then solely on the leader's cognitive attributes. If there is time, the military leader should proportion the effort required by the decision-making process and the benefit derived from it. It must be evaluated in a situation-specific manner how the significance of making people commit themselves is related to the execution of the task. It must also be clarified what "including people" in decision-making means - several models and principles have been developed (Bass & Stogdill 1990, 450 - 471).

Decision-making that makes people commit themselves describes directly the assumed conceptual interaction between decision-making and leadership behavior in the framework. Commitment-wise the question is about individual experience and the impression that the subordinates and peers of the military commander get in this process. From the point of view of social environment, the outcome is *"command climate".* Decision-making that makes people commit themselves and genuine interest towards subordinates have a strong connection to each other (Gal, 1987).

High-quality decision-making describes the framework's assumed conceptual interaction between decision-making and the position of the military leader as well. Furthermore, the concept of responsibility widens: an individual's responsibility for activities and the results that follow can be assumed to increase if the individual has been included in the decision-making. Even though the final responsibility for the execution of the task is with the military leader, subordinates can, by carrying their share of the responsibility, significantly influence the qualitative end result of the activity.

4.3.2.3 The process of military management

Military management process is usually described as a simple time series in which the preparation of activities, decision-making, execution and control are the most significant sectors. The image of future war presents increasing quality demands on the process of military management. Change in the operating environment and decreasing predictability, the development of information technology and an increase in the amount of information, phenomena related to information warfare and the increasing tempo of combat in a deep

area challenge military organizations to develop their management process. Decision-making remains the central part of management process, but the concept of time related to the process changes. (Army Leadership 1999, 6-58; 6;66.)

As a traditional time series the management process is too slow: it can be used only to support reactive military command. The management process must be analyzed as a space of time, the dimensions of which are the phases of the traditional management process. Decision-making can theoretically take place in any part of this space of time. In practice this means that the entire management process should proceed one unit of time ahead of the actual events. This visions requires the introduction of a model of anticipatory management more efficient than the current one as a part of the training of military leaders.

In flexible and situation-sensitive organizations, anticipatory management is an essential part of a well-developed management process. From an organization it requires a model of action in which the intellectual resources of at lest some key individuals are directed towards the future (Yukl 1998, 420 - 423). From a leader, decision-making related to anticipatory management requires the perceiving of entities and change in a creative way and the control of decision-making that makes people commit themselves.

In practice the best way for anticipatory management to take place is in a group formed by experts who represent the organization's main sectors of activity. The task of the group is to outline as an entity the changes in the operating environment over a certain time span, draw from this entity information relevant to the organization's goals and vision using appropriate methods of analysis, and present the results of this work for possible decision-making. (Bass & Avolio 1994, 108 - 112.) The most successful leaders in both peace time and war time organizations support their decision-making by tying anticipatory management firmly to the "traditional" management process. This requires the training and coaching of subordinates (headquarters) in anticipatory management. The process of anticipatory management is based on the "sounding" of both the internal and external operating environment; this way changes can be recognized and prepared for.

In a community that reacts efficiently, such as joint and combined headquarters during war time, each individual should be able to sound even the weakest signals of the changing situation (Åberg 1997, 126 - 128). At the different levels of military command the previously presented requirement is directed especially at the tactical level and the peace

time middle level leadership, and it also means the learning and teaching of efficient forms of group work (Goldstein 1992, 334).

4.4 The military leader's operating environment

I will approach the concept of operating environment from the individual-oriented viewpoint of the leadership training program. In this view the operating environment is the physical and intellectual-cultural environment in which an individual leader functions and of which he makes observations. The observations influence the formation of meaning perspectives, in which case the environment, activities and the consciousness of the leader are in continuous interaction, having an effect on each other. The level of interaction is connected to how well a leader can influence his operating environment. The concept of operating environment includes not only external factors but also elements from one's own organization and its activities. According to certain situational and contextual factors, the meaning perspectives are being tied together as more broad operating schemes.

In order to outline the concept of military command, it is necessary to deal with leadership in relation to the operating environment. In practice every operating environment and its small details are unique. To support the formation of the concept, the microconcept of the operating environment must be analyzed with the principles presented before. I will next deal with the concept of the operating environment by describing three basic types in which the military leader should be able to function efficiently. This classification simplifies the complexity of everyday life, but it also gives an opportunity to analyze the interaction between the sub-concepts of military command.

4.4.1 Open operating environment

Technical and social development in Western states has led through a technological revolution to a revolution of information. A characteristic of this development in all areas of activities is a constant, accelerating change that is hard to predict. People attempt to control change in several ways - with networking systems, by lowering organizations, by focusing on research, with the means of change management, et cetera. According to research, learning organizations and development-oriented individuals have the most success in the control of change (Tichy & Devanna 1986, 271 - 280).

In an open operating environment, there is a direct contact to external change. Success takes place in relation to an organization's ability to anticipate, control and even direct that change (Kettunen 1997, 10 - 14). It is possible to speak of learning organizations, the characteristics of which are creativity, innovativeness, situation sensitivity, low hierarchical structures, networks, great individual freedom of action and flexible organizational structures and routines (Sarala & Sarala 1998, 53 - 59). In an open operating environment, it is characteristic to a learning organization to systematically support the learning and development of its members. (Jarnila 1998, 132 -136). In this situation the growth needs of the members of the organization are satisfied more than in other environments (Bass 1985, 20 - 24).

Success in an open operating environment sets demands on an organization's leadership culture. Leadership must support activities characteristic to a learning organization in all ways possible. An organization or a part of it is in an open operating environment when success unavoidably requires learning and development as well as a culture that supports this (Yukl 1998, 331 - 334). Changes in military command means nowadays partly that more and more military leaders meet the requirements an open operating environment has set for their leadership. An increase of expertise, structural changes, globalization and the demand for social transparency (Krogars 2000, 25 - 26) are some of the elements of an open operating environment.

4.4.2 Restricted operating environment

From the viewpoint of an individual, the characteristics of a restricted operating environment are established organizational structures and procedures, strong organizational culture, high and hierarchical line-staff organization, restricted individual freedom of action and cooperation outside the organization. It is possible to move from a restricted operating environment towards an open operating environment if leadership culture supports this change. Typical to a strongly restricted operating environment is the favoring of transactional leadership culture (Sotilasjohtaja I 1990, 116 - 119).

Organizational culture is the most stable (deep) structure of the operating environment. Structural reforms do not necessarily lead to a desired result if the ways of thinking of the people working in an organization and the functioning culture do not change (Schein 1992, 211 - 213). Locally each superior and leader can greatly influence the operating environment his subordinates experience, both positively and negatively. In an open

operating environment, it is possible, due to inadequate selection and training, to find even from a learning organization leaders who build around them a culture that corresponds to a restricted operating environment. On the other hand, in a large organization that fulfills the criteria for a restricted operating environment it is possible to find work communities in which prevails an open operating environment due to leadership culture that favors learning and development.

A restricted operating environment affects the commitment and motivation of people. The lack of freedom of action and the possibilities to influence without any real justifications makes many individuals regress in their hierarchy of needs from the satisfaction of their growth needs to lower-level needs (Bass 1985, 11 - 13). Bypassing or denying the development needs of an organization and a work community leads to the frustration of people full of initiative, and ultimately they will leave the organization. The conflict becomes more severe as an organization's need for the elements of an open operating environment to support its success become more apparent:

> *The pursuit of an open operating environment is a challenge to external competitiveness as well as the commitment of personnel and even military organizations must be able to respond to it. War time demands can and should be used to justify certain organizational structures, but they can no longer be an explanation to or an excuse for inefficient leadership culture.*

4.4.3 Minimal operating environment

An example of a minimal operating environment is a war time environment from the viewpoint of a single fighter or leader. Strong mental and physical stress that occasional reaches the extreme limits and the following combat stress reactions are typical to this operating environment. A minimal operating environment does not leave an individual with much freedom of action or opportunities to choose even in his own group. These factors result in a regression of human needs to a level where behavior is controlled by the needs of physical survival and safety. According to research, decision-making becomes a crucial element in the behavior of the leader in a minimal operating environment (Sotilasjohtaja I 1990, 60; Gal, 1987). The most dominating feature of minimal operating environment is stress. In the book Military Psychiatry (1994) Gal and Jones present a model of the connection between the behavior of an individual soldier and combat stress, shown in Figure 14.

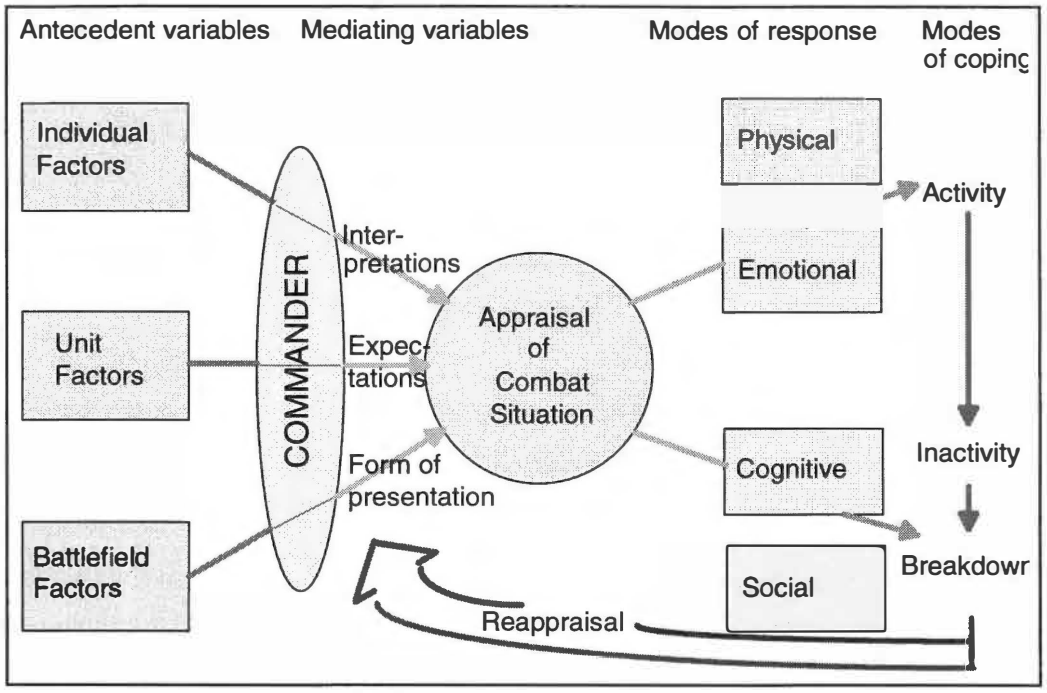


Figure 14. A model of soldier behavior in combat stress conditions (Gal & Jones 1994, 136).

The researchers see the role of the military leader as very important in relation to a soldier's performance capability in a combat situation. The basic factors described in the figure have an influence through interfering factors on the meaning perspectives that an individual forms and indirectly also on an individual's potential and opportunities to cope with stress in a combat situation. The model is interactive and dynamic, because a soldier's ability to cope with stress is influenced by his ability to focus and shape his earlier meaning perspective. In the model the military leader is like a lens that can increase or decrease the effect of (objective) basic factors on soldiers' (subjective) cognitive processes. The model thus assumes that the military leader can in practice have an effect on the formation of his subordinates' meaning perspectives, like Zorn (1992), among others, has found in his studies.

Military organizations are not the only organizations that can face serious crises in which individuals find themselves faced with stressful situations and choices. A minimal operating environment, understood within a certain time frame, is therefore not a phenomenon that belongs only to war time. The question is again about the way and strength that an individual experiences his operating environment. For example the loss of a job and the death of a spouse at the same time can cause to a normal person a situation in which the operating environment manifests itself as minimal. Certain areas of activities occur in the borders of the tripartition presented earlier. One example is PSO´s

that include features from both restricted and minimal operating environment, depending on the phase of the operation:

> *"The experiences of the last decade with PSO and humanitarian operations have clearly shown how complex the situation may be, how quickly it can evolve and how difficult it can be to apply instructions "close to the letter". Moreover, the fact that such operations are executed by small units, wide spread over the terrain, requires that each soldier, irrespective of its rank, has more responsibilities and more roles to play. For example, negotiating disarmament between several factions in a given action zone, being innovative in inventing solutions for local problems in supporting own troops or in providing aid to the local population. Because time pressure and stress is omnipresent in PSO, the role of stimulator and mentor is crucial to operating readiness and thus being successful in fulfilling the mission."* (Mylle 2000, 7.)

Another example are the various units, departments and divisions of a peace time military organization. In order for them to succeed, they have to create an open operating environment for the individuals who work in them. Situational factors also bring their own nuances to the concept of the operating environment in this framework.

4.5 Conclusions

The new concept of military command attempts to move the emphasis of leadership from ordering and the strict control of those orders to leadership that makes subordinates commit themselves. Shifting the emphasis does not change the leader-centricity of decision-making and responsibility, but presents the leadership behavior of the military leader with increasing demands of flexibility and emotional intelligence. The demands are justified with the fact that with the commitment of subordinates the situational sensitivity and efficiency of the entire organization improves in all operating environments.

There is a need to stress that while leading in battle is a legitimate focus of military leadership training, leading prior to battle should be seen as equally important. One of the main tasks of efficient military commander is to create a command climate that supports proper leader development and behavior. In military education the leaders must be taught how to create command climates that facilitates leadership, innovation, learning, and

change. These challenges justify the application and use of the Deep Leadership Model in the military organizations.

The concept of military command can be defined only in a more extensive theoretical framework that combines the lasting and functional views of military command into one entity. From this framework, it is possible in connection to the operating environment, distinguish limiting and specifying microconcepts.

The model of military command helps to understand the paradox of leadership in a military organization. When military command is examined for example from the viewpoint of the formal position of the leader, the result is conclusions that are questioned when military command is examined from the viewpoint of leadership behavior. In practice these viewpoints are not in conflict with each other, but they have an interesting interactive relationship that has not yet been studied enough. In fact, it is possible to think that especially in a military organization the leader's formally strong position offers an exceptionally good opportunity to make use of the potential present in the organization through the military leader's leadership behavior:

> *Military command is a macroconcept that consists of several sub-concepts and the interaction between them. The most important sub-concepts are the position of the leader, decision-making and leadership behavior. The optimal relationship of the sub-concepts is dependent on the operating environment. If examined functionally, military command is an essential phenomenon for the fulfillment of a certain task in a military organization and it can be defined as a creative process that executes human will. Creativity makes possible the useful exploitation of a military organization's human resources. Willpower is the core concept of military command.*

Generally speaking the leader should attempt to find a balance between three sub-contepts of military command in each operating environment. The special features of the areas of activities alter this balance. According to research organizations should try to create for individuals an operating environment as open as possible so that the best conditions for learning and development would be achieved. The creation of an open operating environment takes place in a process in which leadership has a key role.

5. THE LEADERSHIP TRAINING PROGRAM AS AN EDUCATIONAL SYSTEM

As shown in Figure 15, the leadership training program is an entity that is made up of basic assumptions, contents information, method information and system information.

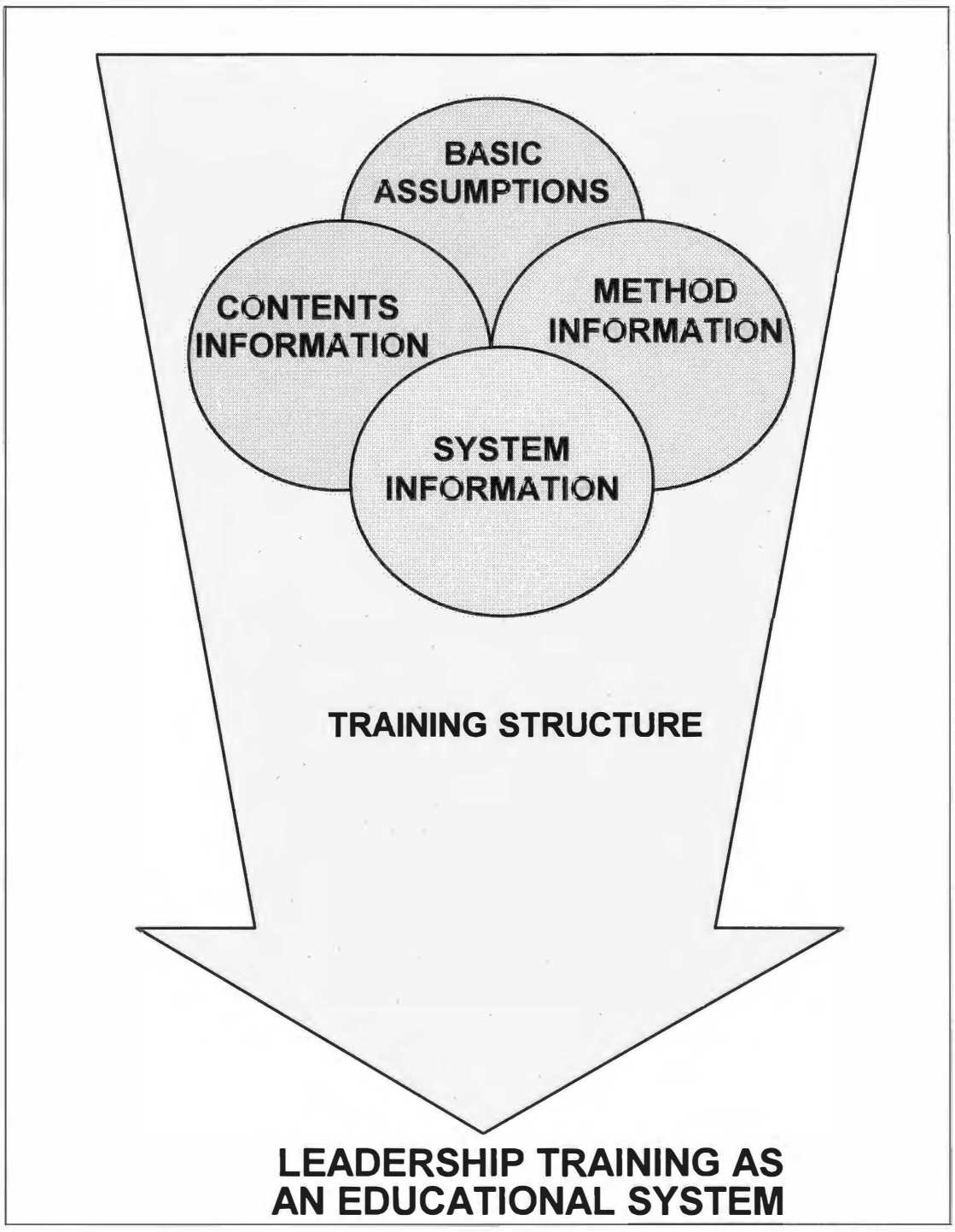


Figure 15. The entity of the leadership training program in the FDF.

5.1 Planning educational systems

The leadership training program that penetrates the entire structure of the FDF is a system of education that has important effects on the entire society. Through military service alone, the Defence Forces train almost 10 000 military leaders to the reserve every year. Many of these reserve leaders continue in different leadership positions in society, in which case the leadership training obtained during military service is externalized into society over a long time span. A system of such dimensions requires a systematic and holistic approach at the level of planning.

The following will briefly deal with the basics of systematic educational planning, on the basis of which the entity of the Defence Forces' leadership training program is easier to understand. The principles presented here are mainly based on Roger Kaufman's (1988) research on planning educational systems.

The main objective of the systematic approach of education is to describe how to carry out responsible, objective-oriented and anthropocentric educational planning. Planning can take into account individual differences and value foundations and develop interaction skills. The systematic approach has the following characteristics:

- it is objective-oriented,
- it considers the individual learner as the center and premise of the planning of the entire system,
- it is an exact way to ensure that the social and personal uniqueness of every individual is formally made the premise of planning,
- it emphasizes that the future success of a learner is equally important as success today.

The systematic approach sees education as a process that should provide learners with the requisite knowledge, skills, abilities and attitudes so that they can adjust and function productively in society after their training. In the basic concepts of the training of the FDF, normative educational planning corresponds the most closely to the systematic approach (Lehtinen, 1996). Furthermore, an educational system should produce opportunities for continuous self-development and social growth, thus participating in the development of the entire society. An efficient educational system is dynamic and self-corrective.

Educational activity must always have a publicly expressed objective, it must be objective-oriented and have trust in achieving those objectives. If the wish is to function in an anticipatory manner instead of mainly reacting, the control of change- anticipation must have a central position already in the planning process. Invariability and stability lead to displacement, mere reacting is a waste of energy without any notable results. On the other hand, innovativeness and the activity with the assumption of responsibility that follow expose the planners of the educational system to criticism. Practical, functional and justified change is nevertheless always a part of the professional responsibility related to real leadership.

It must be remembered that educational systems are only means to achieve social objectives. Some shared characteristics of functioning planning models can be found in the areas of other social sciences and research:

- genuine interest in the success and well-being of the client,
- responding to the needs of the client,
- excuses are not sought to cover up mistakes; instead, mistakes are learned from,
- interactive cooperation with the client,
- almost fanatic attention to detail and quality,
- listening and learning,
- taking notice of the surrounding community and society. (Kaufman 1988, 8.)

The concept of quality is not unambiguous. Quality has to do with both activities and their results. Quality is something exceptional, faultless and uniform, purposeful, cost-effective and developing. The starting point of the quality thinking in the FDF is to develop the organization's will to continuously develop its activities. Self-evaluation is the most important tool in this development work. If the preceding list is compared with the principles of deep leadership presented in the chapter 7, it can be said that this list contains the central principles of deep leadership from an organizational perspective.

Education always takes place in a value context. The deliverer of the educational task and the contributory factors of the educational system form the value foundation of the system. The points of the preceding list can also be interpreted as operating interpretations of the values of an efficient educational system, or as observations of what kinds of behavior models are carried out in efficient organizations.

In education and education planning, values are the objects of constant research and also conflicts between schools. The acceptability of education being value-bound is related to the ability of a democratic society to carry out real and critical discussion about values. A value discussion requires an open culture that can tolerate what is different. (Puolimatka, 1995.) For example, the new leadership training program in the FDF has been criticized for having been built without this critical discussion inside the organization. Actually the renewed leadership training aims to change the leadership culture of the Defence Forces so that in the future actual value discussion would even be possible. It is evident that the leadership culture of a military organization is based on an internally accepted value foundation.

When the leadership training program of the FDF is concerned, taking the surrounding society into consideration encourages, if possible, the use of such frameworks and models that can be flexibly applied to civilian organizations as well (Kivinen et al, 1989). In a wider perspective, it is also a question of increasing international activity and competitiveness (Lehtisalo, 1992).

5.2 The starting points of the leadership training program

5.2.1 Basic assumptions

The basic assumptions of the leadership training program stem directly from the new paradigm of leadership and the constructive concept of learning. The paradigm also offers a premise for the central contents and methods of the program. The basic assumptions are metascientific in nature. The new leadership training program of the FDF is built on the following basic assumptions:

1) there exists a phenomenon that can be called "excellent leadership behavior". This type of leadership behavior is being described through the model of deep leadership. Beyond the human and individual point of view, it is also efficient and productive from an organizational viewpoint, meaning it is worth striving for;
2) excellent leadership behavior can be modeled in any cultural and organizational environment;
3) an efficient leadership training program with supplementary frameworks can be built around modeled leadership behavior;

4) leadership behavior can be credibly and reliably measured with a questionnaire constructed on the basis of the model following the principles of full range feedback and
5) the development of leadership behavior is based on the development of the capabilities of an individual, which is to be seen as an internal, life-long process of the individual.

5.2.2 The contents information

The contents information of the leadership training program is based on research under the umbrella of the new paradigm of leadership, but the model and respective frameworks in use have been adapted to the Finnish cultural environment and military culture. In leadership training, the deep leadership model is supported by the framework of leadership behavior, the general framework of leadership and the conceptual model of military command. At the core of the contents information is the Deep Leadership Model (DLM) that is presented in the chapter 7. The statistical data related to the research of the structure of the Deep Leadership Questionnaire (DLQ) and DLM are reported in the chapters 8, 9 and 10.

The DLM is theoretically based on the modeling of transformational leadership, but with empirical data it has been developed to respond to the requirements of Finnish military training. In addition, it has been ensured that the model has been developed towards our own war experiences, leaning on qualitative data, such as hundreds of theme interviews of war veterans. The general feedback obtained from training events arranged for the military instructors and, for example, user feedback on the functioning of the DLQ in the Rapid Data Analysis System (RDAS) have been taken into account in the preparation and updating of teaching material.

An essential part of contents information related to applying the DLM is the work currently being done in the FDF at different levels of leadership in connection to leadership training: the principles of deep leadership are being interpreted into practices appropriate for each operating environment and level of leadership. In the leadership behavior of an aspirant officer performing his military service deep leadership is likely to be applied differently than in the leadership behavior of a contingent commander. The personal capabilities are also different.

As an educational system, the most important objective in the entire program is that at individual level the contents information of the deep leadership model could at some point form a practical foundation for the critical self-evaluation of an individual's leadership behavior.

This requires leaders to commit themselves to contents information at both cognitive and affective level. For the part of constructivism, and partly the constructive conception of learning, research concentrates in a notable way on the cognitive processes of an individual. Because developing as a leader is a comprehensive growth process, the emotional dimension of an individual's personality has to be fully taken into consideration in research. In addition to metacognitive capabilities, a leader absolutely needs meta-affective capabilities as well. The central challenge of the method information of the leadership training program can be derived from this requirement.

5.2.3 The method information

The basis of the method information of the leadership training program is the critical constructive concept of learning, the extensive application of which is being researched and carried out in the FDF under the research on *military pedagogy*. In behavioral sciences the constructive concept of learning has challenged all the people who work in interactive professions (Rauste-von Wright & von Wright, 1994). When studying the basics of training and leadership, one quickly runs into certain similarities that are primarily related to the facing of reality, human interaction and the formation of individual information. These similarities have been noticed in the birth stages of the paradigms being dealt with here, and the need of the synthesis of experience-centered, interaction-centered and mind-centered approaches actually stems from the new paradigm of leadership.

The training methods in leadership do require as support certain starting points that are related to the trainees; i.e. to learning. In order for leadership training to have an effect, trainees must:

- be motivated to learn,
- be ready to learn (skills, basic potential),
- be aware of the objectives of training,
- have an option of an immediate feedback process, the premise of which is self-evaluation, and

- have an opportunity to practice what they have learned. (Hall and Norris 1993, 36.)

Hall and Norris (1993) state that learning is actually divided into two larger entities: conceptual learning and social learning. By conceptual learning the scientists refer directly to the constructive concept of learning and emphasize the significance of experiential learning in this framework. The central forms of social learning are imitation and the formation of models. In military training, social learning brings up the example of the instructor and superior as one of the most important prerequisites of development as a leader.

Avolio (1999) reports lessons learned from numerous training programs on transformational leadership. Leadership training interventions should:

- begin first considering how to follow-up,
- focus to capitalize on developmental readiness (potential),
- initiate boosters to enhance accountability, support reflective learning and to offer facilitation and coaching and
- tie training to real work goals and expectations.

In these training interventions, the importance of a coherent conceptual model has been noticed. The impact of multi-level feedback on awareness as well as the influence of developmental planning structure has been evidenced through the contibution of follow-up boosters.

The most efficient learning process in leadership starts from the individual himself. This premise should be visible in the feedback process. According to the behavioristic conception of education, the most can be learned from a performance when the instructor gives the trainee immediate feedback. According to the constructive conception of learning, activity is again immediate but in such an order that feedback is mainly based on the trainee's self-evaluation that is listened to by the instructor. This way every feedback discussion is a small step towards self-directedness.

Venkula (1988) deals more profoundly with the theoretical background of the methods presented in this chapter. When dealing with practice through activity, Venkula emphasizes the superior position of skill and praxis in relation to knowledge. Still, too little is known about the opportunities of developing those skills. More research in this field is needed (Clark and Clark 1990, 76). In the FDF, the methods of the new leadership

training have been reported in detail in the book “Puolustusvoimien johtajakoulutus” (Nissinen, 2000b).

At the conceptual level the foundations of the constructive concept of learning have been brought to military training through the concepts and forms of military pedagogy (Toiskallio, 1996; 1998; 2000a; 2000b; Kallioinen, 2001). The military leader is almost without exception the trainer of his subordinates and troops. This viewpoint is emphasized during peace time, when most of the Defence Forces' personnel resources are directed towards training. This way training and training skills become a central part of military leadership, because during times of crisis and when preparing for combat training must continue in order to achieve success. Toiskallio (1998) defines the concept of military pedagogy:

> *"Military pedagogy is a doctrine of training skills. It is a doctrine of setting goals, guiding learning and assessing training activities and know-how."*

Because training is the key task of a peace time military leader, there is a reason to study what kind of educational basic assumptions the field of military pedagogy leans on. Training skills are the ability to guide learning, i.e. the ability to teach and practice. The sub-areas of training skills are:

- the skill to further continuous learning,
- the skill to act as an educator and instructor,
- the skill to act in interactive situations and guide them, and
- the skill to act as a member of a work community.

The changing and unpredictable conditions of the battlefield mean that every soldier must possess flexibility, creative know-how and critical thinking skills. With the help of continuous learning, the basic potential can be refined into real skills. The instructor does not merely carry out training. He is also learning continuously and this way he is the developer of his own work (Ojanen 1996, 12).

Military training always includes education, i.e. the guidance of personal growth. Personal growth shows as the healthy development of self-knowledge and self-confidence, initiative, responsibility and ethical assessment and decision-making ability. It includes the strengthening of communal spirit and the understanding of other people. On this basis the development of knowledge, skills and attitudes can be continuous. The educational skills

of the instructor include seeing and facing the differences in the trainees (Toiskallio 1998, 21).

A good learning process demands purposeful interaction also in military training. With interaction, the trainees' own activity that leads to learning is tuned, guided and supported. The instructor must understand that knowledge, understanding and know-how cannot be directly transferred from one individual to another. When the instructor understands this, he understands also the basic idea of the constructive concept of learning. During peace time in the FDF, military training is given in training companies. An efficient company plans, carries out, evaluates and develops training in groups led by the company commander. This requires that the training atmosphere of the company supports and encourages its members. A peace time company should be a learning organization capable of comprehensive quality control. (Lehtinen, 1996.)

Jarnila (1998) has collected definitions of a learning organization from various scientists and draws his own conclusions from them. For the members of a learning organization, the features associated with it emphasize especially the potential for change, adaptability, innovation and creativity. Among work procedures, reflection, commitment, activity, the support and encouragement of others, working together and openness rise to the surface. According to Ruohotie (1995), the result of these starting points is that a learning organization functions close to its clients, reacts quickly to changes, learns from other organizations, constantly questions its own activities as well as allows mistakes and learns from them.

Toiskallio also emphasizes the principles of coaching as well as the attitude of the coach in military leadership. Coaching is the ability and willingness to personally further the development of individuals by:

- defining clear goals,
- guiding and instructing,
- one's own example,
- helping to see and understand,
- evaluating performances and giving clear feedback,
- giving support when difficulties arise, and
- creating natural commitment and enthusiasm and the willingness to learn and practice. (Toiskallio 1998, 29.)

Toiskallio outlines the core principles of constructivism in the foundations of military pedagogy. He emphasizes the significance of deep learning. The constructive evaluation of the guidance of learning is brought forth, like the self-evaluation of the instructor. The basic assumptions of the training culture (Heikkurinen, 1994; Toiskallio, 1996, 1998, 2000a) that are built on the foundation described above are parallel to the starting points of the new leadership training program. When examining the figure describing the setting of goals for the training of military leadership (see Figure 16), it has to be remembered that creating meaningful study programs is partly based on the exploitation of the parallels between different areas.

According to Toiskallio (2000b), the concept of pedagogy refers to both practise and theory. Military training is practical, and military pedagogy constitutes its support by means of research and teaching in relation to society and culture. Military pedagogy and the new leadership training program are not synonyms. Military pedagogy is a framework of knowledge and research for many paradigms and theories.

Thus, the common starting points of military pedagogy and deep leadership model are easy to see and justify. In this viewpoint, for example Niemi (1994) emphasizes the significance of critical reflection and emancipatory ideal of knowledge. As well, the person and the touch of the instructor may have a decisive role concerning the end result in the teaching and training of leadership skills (Casey et al, 1992). The teaching of and learning for leadership starts from the following basic assumptions:

1) the concept of leadership is closely connected to the concepts of training and teaching both theoretically and in practise;
2) Each trainee who has reached adult age already has his own view on leadership and personal experiences about being the subject of leadership and
3) Because deep leadership is based on the whole personality, i.e. the potential of the leader, real development cannot begin until the feedback process functions. At the basic training phase the trainee's knowledge and attitudes in relation to personal development can be influenced and thus create potential for learning from feedback.

5.2.4 The system information

The basis of the system information of the leadership training program is the organization of the training of the Finnish Defence Forces, the objectives of leadership training and the conception of the effectiveness of leadership training in a military organization.

In the FDF leadership training is built within all training systems. By developing their training systems, military organizations attempt to respond to the change in the internal and external area of operations. Today and in the future military organizations face change that is both extensive and multidimensional. Pressure for change extends from the level of the area of operations and the meaning of the existence of military organizations to the perspectives of meaning of individual people.

The conceptual and practical control of change is also the greatest challenge of military leadership in peace time Defence Forces. The control of change always requires flexibility and continuous learning, as well. Learning related to military leadership can not in the future rest only on the formal training system or be left to it. Every military leader should internalize the principle of continuous self-development or life-long learning as a part of his professional personality.

In this research I do not analyze the changing organization and structures of military training systems. Instead, my objective is to present the principles and practical applications on which leadership training is appropriate to construct in any training system, military or civilian. The setting of educational goals for leadership training starts from a basic arrangement, shown in Figure 16, which is a part of the conception of learning in the new paradigm of leadership. Development as a leader is a life-long process that is tied to the whole personality of an individual.

Formal training is only a part of this long process that, from the viewpoint of leadership behavior, is related to the comprehensive growth as a human being. In the end, the comprehensive development as a leader is in fact the development of the capability that acts on the background of all skills. This process is based on the self-directedness of a leader. The basic idea and the change of emphasis in the career-long perspective in the military leadership training is shown in Figure 16. The new paradigm of leadership has had an effect on the thinking about leadership training in the armed forces of other countries, as well. For example, Army Leadership (1999), starts off from a quite similar framework.

Further on, Hersey et al (1996) base their ideas on this kind of conceptual approach to life-long learning for leadership.

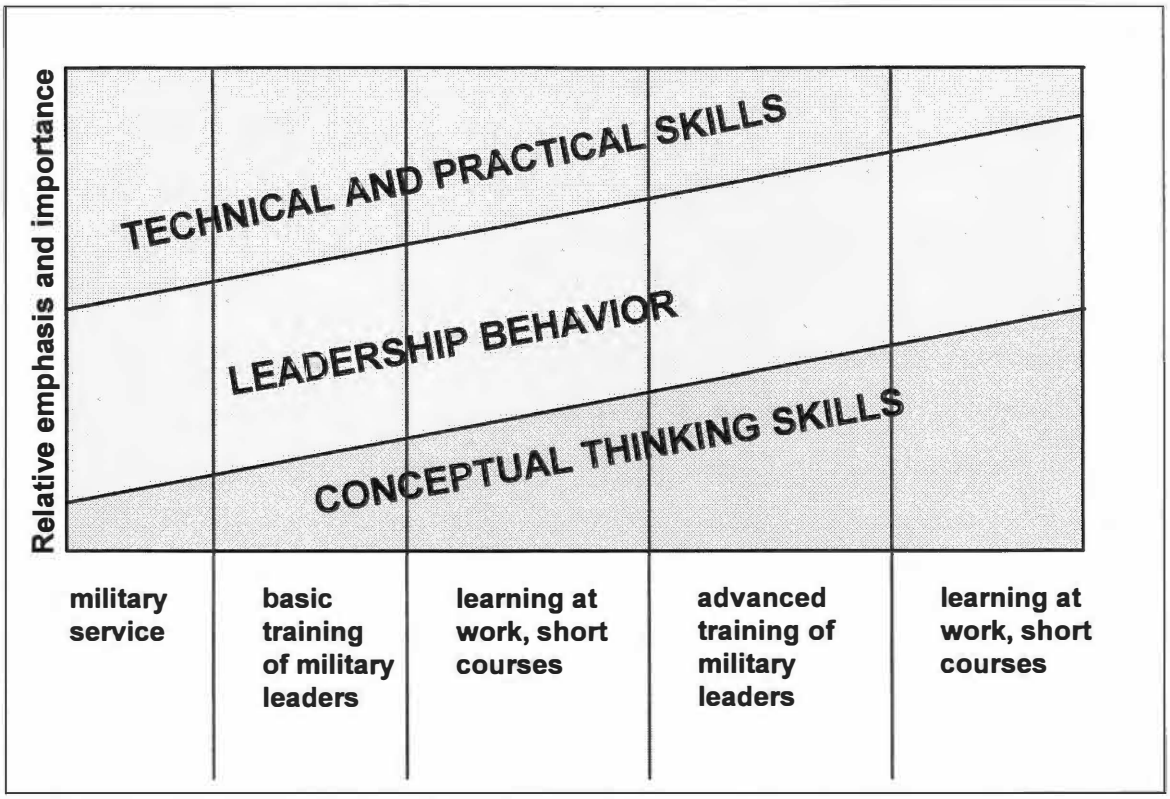


Figure 16. Development as a leader in the training of military leaders.

Rauste-von Wright and von Wright (1994) analyze the concepts of reflection and self-reflection from the viewpoint of the development history of an individual. They think that self-reflection requires being aware of and interpreting one's internal activities, i.e. examining one's own intentions and motives. It is obvious that with self-reflection, we can obtain new information about our self.

From the viewpoint of the skill metaphor, we are dealing with a skill that requires both learning even as such and learning-related motivation to exploit meta-cognitive information. Scientists emphasize the role of cognitive conflicts in the development of self-reflective thinking and their interpretation is that in adult teaching the concept of self-directedness is an interpretation of self-reflection and is based on the skill metaphor. Emphasizing the significance of cognitive conflicts builds a direct connection to the thoughts of Burns (1978). Seeing leadership from the point of view of developing the capabilities of subordinates requires that a leader is even capable of inspiring cognitive conflicts in his subordinates and facing the situations that follow.

Mezirow (1991) describes the self-directedness (comparable to the concept of self-system processes, see Malmivuori 2001, 298 - 299) learning and thinking of adults. A communal view is brought to the side of the individual-centricity of self-directedness. Mezirow writes:

> *"The essence of adult education is to help learners construe experience in a way that allows them to understand more clearly the reasons for the problems and the action options open to them so that they can improve the quality of their decision-making."* (Mezirow 1991, 203.)

Ruohotie (1995) emphasizes the concept of self-directedness in relation to learning and he defines, quoting Varila (1990), that self-directedness usually means a learner's state of awareness, or the capability for self-directive learning. Self-directedness can therefore be examined as a process and as a state of awareness. The latter can be regarded as a fairly permanent characteristic of an individual.

What is the relationship between the concept of self-directedness and leadership training? Development as a leader requires an individual to have very personal and deep-reaching processes, as a result of which the individual can change both his externally visible leadership behavior and his personal capabilities that give a foundation to it. From these viewpoints, self-directedness is not only desirable or worth pursuing; it is the basic requirement for development as a leader. From the process view of self-directedness, the question has to do with the cycle of anticipation, activity itself and the logical analysis of activity-related feedback. The entire cycle is related to an individual's own leadership behavior. Seeing self-directedness as a state of awareness means that a general objective of leadership training at all stages must be the development of capabilities that have to do with an individual's self-awareness and self-reflection.

From the viewpoint of the objectives of leadership training, self-directedness is a conceptual abstraction, an entity that remains behind the specific objectives that can be shaped more clearly. Self-reflection has to do with an individual's ideal of becoming perfect, as well as the dimensions of functionality and maturity (Heikkurinen 1994, 84 - 87). When leadership training is being planned, the development of self-directedness should be a central educational premise for training methods as well as for the professional qualifications of instructors. From the viewpoint of evaluation, the question is about an individual's commitment to self-directedness's key value, continuous self-development (Yukl 1998, 490).

5.3 The hierarchy of the objectives of the leadership training program

The objectives of leadership training can be defined at several different levels, from a single concrete procedure or model all the way to the abstract concept of self-directedness. As an example of goal setting for leadership training, it is possible to mention the objectives of the Leadership Training Institute of the Israeli Defence Forces. In a report on training the objectives of institutionalized leadership development are defined as follows:

1. Developing personal awareness and conceptual understanding.
2. Developing behavioral skills.
3. Developing the commander´s self-efficacy in his ability to motivate his soldiers. (The School for Leadership Development 1998, 9.)

In the new leadership training program of the FDF, the development of self-awareness and conceptual thinking aim to support comprehensive self-reflection and personal growth. In the development of leadership behavior emphasis is not solely on perceivable interactive skills, but on key skills such as visioning and development of situational awareness. The aim is to develop self-confidence of leader trainees by using methods of learning at work, by ensuring sufficient and encouraging feedback through simulated exercises and the instructors' coaching touch.

To a young military leader in particular, technical and practical skills (see Figure 14) are necessary basic skills that form a foundation for the entity of professionalism. In their own operating environment, they are connected to the use and maintenance of weapons, weapons systems and ordnance and to general military skills like orienteering, firing, close combat and first-aid skills. When a young military leader plans and organizes training, his above-mentioned skills form the premise for his activities (Heikkurinen 1994, 121 - 134). There are notable differences between services, branches and training branches and the curriculum must reflect this. The significance of this area of skill decreases in leadership when moving to the middle and top levels of an organization.

Inter- and intrapersonal skills are related to leadership behavior. Interpersonal skills refer to the ability to understand other people and their behavior: how to create trust among people, what encourages, inspires and motivates, how to really get people involved and committed to both objectives and self-development, how important it is to listen, care for and respect one's fellow-men (Goleman, 1995). Intrapersonal skills are directed at the

individual himself, thus creating a foundation for real self-directedness (Bandura, 1998). The importance of this area of skill remains large at all levels of leadership. On the other hand, it should be noted that changes in the level of leadership and the area of operations create a need for an individual to check the efficiency of his leadership behavior by using feedback systems.

The skills of conceptual thinking are related to the high level human cognitive processes. The apprehending of entities, understanding complexity and making efficient as well as anticipatory decisions require the ability to combine and understand concrete phenomena at a conceptual level. Conceptual thinking creates a foundation for the ability to do research. It also creates a foundation for the ability to draw up visions and manage in an anticipatory manner; in other words, strategic level leadership. Conceptual thinking is the control of information at all levels. On the other hand, it should be noted that changes in the level of leadership and the operating environment always cause a need for individuals to review with feedback systems the efficiency of their leadership behavior.

When interpreting this framework in the training systems, or the setting of goals for curricula, it would be advantageous to examine a 2x2 matrix in which variables are contents information and method information, and on the other hand long and short term goals. This way leadership training can acquire a logical structure that takes into account the needs of the organization as well as the demands related to the development and life-long learning of an individual. The hierarchy of goals is also referred to in the areas or training planning (Lehtinen, 1996).

Leadership training carried out in a military organization aims primarily to fulfill precise organizational needs. The needs of leadership training are based on the tasks and structures of the military organization, in which case qualitative and quantitative demands can be set on the training system. Through systematic planning it is possible to build inside leadership training a value foundation that supports the activities of the entire organization as well as democratic social order. Leadership training in a military organization cannot be free of values (Bass, 1998b).

The attitudes and behavioral models of instructors as well as different traditions carried on by students emphasize the significance of the internalization of the value foundation. It is difficult to imagine the training of military leaders without a framework that originates from values. This becomes the basic question of leadership training that originates from an

organization: *can the constructive principle of leadership training, introduced already by Burns, be applied to the traditional value-bound training system*? According to the analysis of student feedback and the first-hand impressions in conscript training in the FDF, it is possible (Nissinen [ed.], 2000a). Giving an exact answer here is thus impossible, but in principle the question deals with the possible conflict of the values of the organization and trainees. In pluralistic and heterogeneous societies this problem has already been recognized (Ulmer 1999).

No significant problems in this area have surfaced in the FDF so far, because other values of society have strongly supported the performance of the training duty of the FDF. At individual level there is a trend of increasing plurality, but trainees with value foundations that have adjusted well to the training system of a military organization have still chosen to become career officers (Verkasalo, 1995). From the viewpoint of the training system it is also important that the development of leaders trained for the reserve is encouraged to continue in the leadership positions of the civilian society. This is how connections to the social framework are made.

The reform of leadership training that has already been started must therefore be seen as a part of cyclic movement in which changes in the values of the operating environment, leadership training and the leadership culture of the entire organization follow each other. The new paradigm of leadership is seen as a particularly competent premise for leadership for this particular reason (Bass 1998a).

Is the model of deep leadership offered to the trainees not in conflict with the constructive conception of learning? If methods like unraveling the leadership experiences are applied to training (Bass & Avolio 1997; Avolio 1999), it can be noticed that the paradox will be solved. The inevitable result of the compilation of the trainees' experiences is a description of leadership behavior that is sufficiently joined to the model of deep leadership. Therefore we are dealing with a process that mainly strengthens our already existing collective conception of the forms of excellent leadership behavior, as the paradigm assumes.

From the viewpoint of leadership behavior, the objectives of the leadership training program in the FDF position themselves in the following hierarchical order:

1. Development of the leadership behavior of military leaders.
2. Increasing the efficiency and productivity of the FDF.
3. Development of the leadership culture of the FDF.

4. Development of leadership culture in the entire society.

5.4 Development of the leadership behavior of military leaders

With leader selection, trainees with certain skills and learning potential are selected to become military leaders. On this basis it is expected that *every military leader* can, if he so wishes, develop as a leader within certain limits. It is improbable that perfection in leadership will ever be achieved, though (Clark & Clark 1996, xx). Therefore in the development as a leader the most important thing is not to achieve some exact level, but the individual's attitude and internal process that should be continuous and life-long. Because growth as a human being is also related to development as a leader, commitment to a development decision at individual level is an important value choice.

This paragraph deals with the needs and opportunities of developing leadership behavior in a military organization. The development of leadership behavior is not efficient without feedback from others. Development as a leader is a macro concept of leadership behavior, because lasting and real change in leadership behavior means in most cases that changes take place also in the individual's values, attitudes and ways of thinking. Development as a leader is an individual's internal process, whose practical and concrete contact surface to everyday reality is a visible change in leadership behavior. Because the development of leadership behavior is based on the individual's own experiences and it is related to the comprehensive growth as a human being, the greatest changes in most leaders occur in early adulthood. Between the ages of 20 and 30 years a young military leader needs the most support and guidance from the outside. At this point guidance most likely has more effect than later, because the meaning perspectives change also for natural reasons (Ahteenmäki-Pelkonen 1997, 195 - 205).

A foundation for the development of leadership behavior is built in training during military service. Military leaders are encouraged to use in the reserves, in other words in their civilian assignments, the tools for development as a leader that they were offered during conscript service. When feedback information related to leadership behavior is filed, it is possible in refresher training to find out the leadership potential of a reservist leader by using the DLQ as well as measuring the performance ability of the contingent.

In the training of permanent personnel at organizational level, the aim is to carry out as systematically as possible the principle of life-long learning and continuous development

as a leader. In practice this means that training periods alternate logically with learning at work throughout one's military career. The development of leadership behavior also has connections to advancement in the military career, because the skills of learning to learn and a positive attitude towards self-development are the characteristics of a successful individual even in a military organization.

5.4.1 The development of leadership behavior in conscript service

The starting point is that those being trained into reserve non-commissioned officers and officers receive the same basic training in leadership skills. Actual leadership training is commenced in the first phase of the non-commissioned officer course. Instruction is begun by considering the basic aims of leadership training and self-directiveness. Of the contents of the leadership training program, especially the values and ethics of leadership, self-knowledge, knowledge of human nature and development as a leader from the viewpoint of self-directedness are dealt with. The phase is finished with an essay in which the trainees assess their own values and attitudes in relation to their future duties.

During the reserve officer course and the second phase of the non-commissioned officer course the deep leadership model is introduced. The leadership in battle is analyzed on the basis of battle experiences as well as the premises of a modern-day battlefield and the trainees also receive the basics of using the deep leadership questionnaire in a company. The image of modern-day battle and its effects on leadership are taught by using the newest military educational movies. The instruction package also includes material on understanding the concept of military discipline and enhancing group cohesion.

Training is enriched with methods like unraveling the leadership experiences with role-playing, analysing leadership behavior with videos, leadership simulation courses, case-studies, using case-groups (with problematic leadership cases) in field exercises and fish pool exercises, thus creating the preconditions for commitment to the leadership training program. Military leadership is also practiced during these courses in different exercises using peer groups. With feedback sessions that follow the leadership performances, preliminary understanding is created in the trainees concerning the importance of self-directedness and the strengths and developmental needs of their leadership behavior. The example given by the instructor has a great effect on the learning of how to handle feedback.

For the development of leadership behavior, the most important phase of conscript service is approximately a six-month long service as a leader in a training company. The time period is divided into phases of basic training, special training and unit training. For young conscript leaders, there are two important factors in this training phasing that support the development and growth as a leader.

First of all, during the basic training phase squad leaders and officer cadets lead and train mainly the younger intake, i.e. the recruits. This arrangement gives an opportunity for a natural superior-subordinate relationship, because when comparing a recruit who has just commenced his service, with the know-how of a squad leader it is sufficient to provide a basis to a guiding leadership. Because the basic training phase begins with adapting oneself to a military organization and learning the basic skills, the conscript leaders can in their activities apply the "follow me" -approach. This way the foundation for the creation of trust is created through the conscript leader's own example.

Another important viewpoint is a principle related to the production of troops, according to which war time companies or platoons are formed, beginning with the training selections of the special training phase, from the older leadership intake and the younger rank and file intake. Training is carried out in this configuration. At the end of military service, these troops are transferred into the reserve still in the same configuration. Already at the training phase this procedure makes possible two requirements that are essential from leadership's point of view:

1. The creation of trust between the leader and the group, and
2. The creation of primary cohesion.

The principle of training the war time troops together is explained to conscripts at the start of military service and it is believed that it motivates both leaders and the rank and file to get to know and adjust to their war time unit. During six-months service as a conscript leader, the most important elements in the development of leadership behavior are one's own instructor, systematic feedback, personal leadership file and teamwork among the conscript leaders.

Supporting the growth as a leader and encouraging development require that an instructor who belongs to regular personnel has a coaching approach to the conscript leaders under him. Coaching begins with the instructor's own example. In everyday service conscript leaders need time, support and instructions as they prepare to lead various training

events. Here is one of the critical factors of the system: *are young instructors, who are still trying to find themselves as military leaders, able to function as coaches to the conscript leaders under them*?

5.4.1.1 Immediate feedback

In the best case a company has both young and more experienced instructors who keep up a close and genuine dialogue that is oriented towards learning. In such a case a young instructor receives support not only from his superior but also from his service mates, and the instructors of the company form kind of a team of experts. The role of the company commander as the developer of the leadership behavior of the instructors is important. By coaching his subordinates, the commander creates in his company an atmosphere that encourages learning and development. For instructors, too, the leadership profile produced with the deep leadership questionnaire is a central tool and it functions as a basis for development discussions.

By sharing his knowledge and experience with his subordinate conscript leaders, an instructor makes it possible to carry out high-quality training events. During training the instructor must be available, but the conscript leaders must, within the limits of security and purposefulness, be guaranteed certain freedom of activity. An entity that creates a foundation both for the learning of conscript leaders and good training results through direct feedback is born from good preparations and adequate freedom of activity.

The extent and execution of direct feedback have to be proportioned to the entity being evaluated. The most important thing is that the handling of feedback really is direct and continuous. Direct feedback is a guidance discussion in which a conscript leader evaluates a training event he himself has led. An essential question is, did the training event reach the goal set for it. The conscript leader should be taught to answer this question so that he is capable of separating from each other his own potential, the guidance he has received and reasons relating to situational factors. The evaluation of the effects of situational factors enriches the conscript leader's sphere of experiences and creates potential for acting in similar conditions later on. The evaluation of guidance received is feedback to the instructor.

For the development of leadership behavior, probably the most important sector is the evaluation of one's own potential, in which the deep leadership model and the related

feedback form can be used as support and structure. This way it is possible to separate from each other professional skills, the correction of mistakes and effects noticed in the target group.

For the development of self-directiveness, it is fundamentally important to give direct feedback so that the situation begins with the conscript leader's self-evaluation. After this the instructor states his own observations and the most important ones are written down on the feedback form that the conscript leader then files in his own leadership folder. The more extensive the entity, the more time the instructor must have for the execution of feedback. The atmosphere of the feedback situation has a decisive effect on whether the situation supports learning or is it just a formality that feels useless. The feedback situations must have quality that stems from an unhurried atmosphere. The trainee must be listened to.

5.4.1.2 Team work

The team work of conscript leaders is typically a process in which the conscript leaders of one platoon are called round one table. The question is thus about working in small groups, in which everyone can and must take a stand towards the issues being handled. In a company, one hour two to four times a month is reserved for team work. The objective of team work is to get conscript leaders to discuss training and its execution among themselves. The aim of the process is that after the practice phase conscript leaders:

- can assume responsibility for the reaching of training goals and perceive their own share in the training results,
- can analyze the established routines of the company and make justified development suggestions to the company commander,
- can harmonize their own leadership procedures and think about common solutions for situations that are perceived problematic,
- notice in practice the common development needs related to leadership and are encouraged to support each other in development aspirations.

Dealing with training and its aims is possible through the means of group work even after a short orientation phase. On the other hand, developing leadership behavior with the help of a team requires strong unity and trust from the group in question. Through feedback on group work it has been noted that in the beginning the team needs a leader or an

instructor for support so that the aims and principles of activities are understood and that work would be purposeful and efficient. After the first stage an outside instructor is no longer needed, but work is carried out with each conscript leader acting as the leader.
If the conscript leaders have proposals to the company commander, a short memo is drawn up of the team work. In many companies it is purposeful to join the team work of conscript leaders and the (weekly) instructor meetings led by the company commander so that information can be transferred quickly.

5.4.1.3 Full range feedback

The purpose of full range feedback is to produce extensive information about the leadership behavior of the conscript leader. The basis of full range feedback is the deep leadership questionnaire. The leadership profiles are filed in the leadership portfolios. In connection with the first full range feedback of each intake it is well-founded for the company commander to go over with all the soldiers the principles and procedures of feedback in order to motivate all those who answer it to give honest and thorough feedback. There is a reason to emphasize to the entire company the significance of the feedback to the individual in question. Even though the leadership profiles are for the leaders' own use to support their personal development, it is sensible for the overall picture to tell how leaders analyze and take advantage of the feedback.

After receiving his leadership profile, the conscript leader will begin to analyze his leadership behavior, leaning on the instructions for the interpretation of the deep leadership questionnaire. Special attention should be paid to those dimensions in which self-evaluation differs significantly from the evaluations of others or where there is great dispersion between different feedback groups. When dealing with these questions, the support and observations of the closest peers are often useful. Once the conscript leader has gone over his feedback, he will have a feedback discussion with his own instructor.

The feedback discussion again proceeds so that the conscript leader recounts his own observations and the instructor listens. Personal strengths and development needs should be found and identified from the leadership profile so that a positive attitude towards feedback is maintained. For one concrete development need, the feedback discussion should finish with a decision according to which the conscript leader will attempt to develop his behavior for the next two months. In an ideal case the conscript leader will also go over the feedback he has received with his own subordinates. The duty of the

instructor is to support the conscript leader in these aspirations, leaning on his own experience. All feedback is filed in the leadership portfolio. The results of the last full range feedback are recorded in the final overall leadership evaluation.

5.4.1.4 The leadership portfolio

The leadership portfolio is the personal deposit file of each military leader and it is opened in the first phase of the non-commissioned officer course. In the portfolio are to be filed the most important study materials, feedback forms from exercises, leadership profiles, open feedback, self-evaluations and development plans. The portfolio is the memory of leadership development and its duty is to show concretely to each leader that changes occur in the behavior of the leader as well as in subordinates. The portfolio goes into the reserve or advanced training with the trainee and its upkeep is encouraged in the training of regular personnel as well as in connection with refresher training.

5.4.1.5 Training company as an operating environment

Considering the development of conscript leaders, feedback systems are an easy way to motivate and make learning more effective. The meaning of feedback systems is blurred, however, unless the routines and procedures of the company support development as a leader. The structure and routines of the company create a foundation for the activities of conscript leaders. It is more natural to start growing into responsibility and more challenging duties from this level.

An efficient training company can not afford to tie its trained personnel to tasks and routines that belong to conscript leaders' level and responsibility. When a new intake begins its service, the company must have clear task descriptions that show the organization of the company, leadership relationships and distribution of responsibility at the level of daily duties. There must be control and guidance especially in the beginning so that procedures shape themselves into what the company commander wants. Traditions that do not serve training and the development of positive attitudes must be effectively eliminated. Traditions that strengthen the will to defend the country, group cohesion and commitment to shared goals must be preserved and strengthened.

The key process of the company is the planning, management and execution of training. Conscript leaders must be included in this process so that they understand the importance

of their own activities in the production of war time troops. *The respect shown to the conscript leaders by regular personnel is directly related to the respect the conscript leaders receive from their subordinates.* The conscript leaders have to be supported in their demanding task in all possible ways so that they could, through the creation of a natural leadership position, strive towards deep leadership and away from the role of a formal disciplinarian. This process does not have a clear formula, but it is possible to increase the understanding of the issue by dealing with military discipline and discussing it with all conscripts.

The personal authority of conscript leaders in relation to their subordinates is usually low. Therefore the conscript leaders require as their support a position in the company's hierarchy that removes insecurity. A position like this can only be created through the respect and trust shown by regular personnel. Control must not be neglected, though, especially in the beginning of the leadership period. Sometimes it is necessary to end "traditions" that do not support learning and the achievement of training results.

In the end, the conscript leader's learning and development as a leader are not based on the leadership training program, some information systems, or even deep leadership model. The basis of learning is that the conscript leader perceives his duty important and useful, he gets an opportunity to try his skills in demanding leadership tasks and feels that he receives from the company personnel an example, support and encouraging feedback in these tasks. (PEkoul-os PAK 1:5.1.8.)

Development as a leader can begin from these premises already at this iniative level. The framework of the leadership training program, the deep leadership model and the adopting of feedback systems create the preconditions for the continuing and deepening of development as a leader in the reserve as well. In refresher training it is possible to produce feedback and leadership profiles to those leaders in the reserve that have been trained in the earlier conscript system.

5.4.2 The development of leadership behavior in institutions of military education

In institutions of military education, the *extended concept* of leadership behavior is applied to all assessments, feedback and development. According to the concept:

"*Leadership behavior is the leader's intentional interaction with his subordinates. With leadership behavior, a leader takes into use and directs the resources of his organization in order to achieve the set goals. Leadership behavior includes interaction with colleagues, superiors and interest groups. Leadership behavior during military courses is examined in leader, expert and as well as in subordinate tasks."* (The NDC rule 696/5.2.3/D/I/4.9.1998.)

According to this definition, leadership behavior will be comprehensively evaluated. On the background of the extended concept is the assumption that a good superior can also be a good subordinate and build interaction with his peers as well as interest groups. The result of the interpretation of the concept is that it is possible to find from all practical exercises some material for the feedback process, no matter what the duty of the trainee is.

5.4.2.1 Basic officer training

The personnel to be trained into military leaders of the FDF is recruited from the group that has received leadership training during military service. This way the leadership training of conscripts creates a systematic foundation for the continuation of training and the development of leadership behavior. Because the syllabus of the leadership and instructor training of military leaders is the same in all services and branches, the basic training of military leaders starts off from a fairly uniform starting level.

Basic training program has been built on the following assumptions:

- each trainee has personal experience of the military organization as well as of acting as a leader and being under someone else's leadership,
- the most important experiences, feedback and development-oriented plans are filed in the personal leadership portfolio,
- the trainees know personally the deep leadership model and its principles, as well as the feedback related to it,
- many trainees have experiences of leadership from a viewpoint other than that of a conscript leader, and
- concrete experiences of a company as an area of operations and leadership culture nevertheless vary greatly.

The starting points stated above provide an excellent foundation for the varied application of the methods of leadership training in the basic training of military leaders. Training is

begun with the profound handling of experiences acquired during military service and one's own leadership profile. When an entire course is working together, the method used is still the unraveling of leadership experiences. Students also form small groups that begin to unravel leadership profiles got during military service and the conclusions drawn from them.

The filed leadership profiles also function as excellent basis for the instructors of institutions of military education and course directors to get to know their trainees and their backgrounds, starting from the first discussion. The cohesion and performance capability of the small groups should be maintained as training proceeds, because at best, they can offer strong support for an individual in the interpretation and evaluation of feedback received during the course.

The teaching of leadership skills deepens and expands the contents of the leadership and instructor training package of military leaders. A foundation for the development of leadership behavior is created by building an image of an efficient military leader from the viewpoint of an instructor and war time combat leader. Observations and examples that stem from peace time training companies, peace support operations and war experiences act as a frame to leadership simulation courses and practical exercises. Personal growth as a leader is encouraged in feedback sessions through the areas of personal strength that each trainee has.

Because the basic training of military leaders is a time of growth as a person as well, each trainer and instructor in institutions of military education must assume responsibility as an educator as well, not solely as an expert. The experiences and incentives obtained in basic training carry military leaders far into the future. Focusing on the individual development of trainees and their learning to learn is the best way in military training to build a future. This applies especially to those trainees with the most needs for development.

The feedback system of institutions of military training should be as versatile as possible. The most important feedback tools are:

- evaluations by peers,
- direct feedback and assessment related to leadership and training performances in various exercises,
- instructor evaluations, and

- feedback on supervised practical training.

In feedback and evaluation processes, the use of external experts and the possibilities to student exchange between colleges could be studied. The effectiveness of peer evaluation is based on the fact that the group of students doing the evaluation is familiar with each other. The observations about an individual's leadership behavior, endurance and ability to stand pressure that are made in the harsh and demanding field exercises of military training form the basis for familiarity. To the extent possible, peer evaluation must take advantage of the small groups formed for the development of leadership behavior. Peer evaluation is carried out according to need, usually once a year. A method based on both numerical and verbal feedback is being established in peer evaluation.

The direct feedback process is in institutions of military education as essential as in conscript service. During the feedback discussion the principles presented earlier are followed. In a single exercise, however, several sources of feedback can be used. A leading principle in training should be that in extensive and expensive field exercises focus is on the quality of learning by carrying out the feedback system as effectively as possible. This applies to the feedback of the trainees as well as the development of the entire exercise. The time required by the feedback process must be taken into account already in the planning stage and noted in the execution plans.

At fixed intervals, often in connection with the assessment system, a trainees' instructor evaluation is carried out. The premise is that in most cases the instructors do not get to know all trainees well enough in courses where the number of participants is high. Should the validity of the instructor evaluation be increased, each instructor must supervise the same small group of trainees assigned to him. This way it is possible to deepen in a limited manner the familiarity between instructors and trainees.

Instructor evaluation is prepared individually. Instructor evaluation emphasizes the responsibility of each teacher on his trainees. In practice, this should be visible by purposefully getting to know the trainees as well as possible. The training system itself provides opportunities for this, but the actual work and emphasis in this area often rests solely on the conscience of a single teacher. Evaluations are combined in a teachers' meeting. Preparations can be made using a list of students' names and pictures. Each teacher evaluates the trainees using the same principles that were used in peer evaluation, both numerically and verbally. In the teachers' meeting, a numerical evaluation

is the average of individual evaluations. Verbal evaluation takes its shape in the teachers' discussion. According to the distribution of responsibility agreed upon in the beginning of the course, all evaluations are reported to the trainees during the development discussions. The development discussions follow the principles of the feedback process presented earlier.

Supervised practical training is a real opportunity to the trainee to focus on his leadership behavior between the conscript leadership experiences and the actual service career. When understood correctly, practical training is a significant intermediate stage in the development of leadership behavior. In order for the organization to benefit from this experience, the training military leader must not be used in the company as a "rotating instructor". Instead, he must be given the opportunity to train one platoon, battery section or contingent long enough so that all the feedback requirements can be fulfilled. The group, conscript leaders and the instructor must get to know each other in the barracks as well as in the field. The company commander or an experienced instructor must at least from time to time follow these training events and supervise the trainee. The aim should be that the commander is able to assess training results using established "hard" meters as well (shooting results, combatant's basic test, quality of produced war time unit, etc.). This is important information for a developing military leader.

When the supervised practical training is over, the trainee obtains from the company a full range feedback with the deep leadership questionnaire. Furthermore, the company commander draws up a written feedback that is based on the achieved training results. When the course continues in the institution of military education, the trainees analyze their feedback by comparing their leadership profiles to earlier ones. Comparison is made difficult, though, by the earlier-mentioned fact that as duties and the level of leadership change, the assessment criteria of other people change as well. It is probable that more is expected from a military leader who has received basic training than from a conscript leader. After the personal analysis phase feedback is unraveled in development discussions with both the immediate superior and the peer group. After the discussions, the trainees draw up a development plan.

5.4.2.2 Advanced officer training

Military leaders arrive for advanced training from very different service locations, no matter what the level of training is. From the viewpoint of leadership training, this experiential

variety is a source of wealth that should be taken advantage of in the structures of various courses as a part of the development of leadership behavior. With the methods of leadership training, these experiences can be extensively shared with the trainees. The development of leadership behavior is still based on full range feedback. The superiors of military leaders arriving for advanced training carry out full range feedback as instructed by the institution of military education. In the postgraduate degree, the development of leadership behavior is again commenced with the analysis of this feedback. The analysis is finished with the drawing up of a personal development plan.

In the postgraduate degree, the peer and instructor evaluations of the feedback system are used with the same principles as in the first degree. Work in groups and various assignments in headquarters during different kind exercises create preconditions for reliable evaluation. Because the advanced training phase includes relatively few actual leadership assignments, the cooperation potential of a military leader is emphasized especially in peer evaluation.

Considering the comprehensive development as a leader, in the postgraduate degree there is a shift in emphasis in the direction of the development of conceptual thinking. Change management, for example, is examined as a link between the development of leadership behavior and strategic level leadership. In the 1980s the roots of research on the background of deep leadership are in the theory of change management. Because the advanced training phase aims for the creation of potential needed for the long-term development of the Defence Forces, change management can be seen as one organizational tool for the development of the organization and leadership culture of the Defence Forces. At this level too, deep leadership is a personal tool in both leadership and the development of leadership behavior for the tasks of the highest command of the Defence Forces.

The military leader is always both the trainer and the coach of his subordinates. This view is emphasized in advanced training and after it. Commanders as well as chiefs of staff and heads of divisions should in the near future be able to develop their work communities within the framework provided by the general model of leadership. The structures and routines of the organization must be reviewed, inefficient solutions must be abandoned and feedback systems must be taken advantage of in the support of self-evaluation. The efficiency of the leadership process and the professional skills required by tasks have to be ensured. Emphasis must be on the commitment and learning of people.

Requirements in the development of leadership are no longer limited to one's own leadership behavior; instead, the coaching of one's own closest subordinates is also included. Coaching means releasing the potential hidden in the subordinate for the benefit of the work unit and thus the entire organization. The hidden potential of people can be released with the means of deep leadership.

5.4.3 The development of leadership behavior in regular service

The process of developing as a leader takes place at two levels in a military organization. The first level is the long-term development process that takes place in the direction of the general goals of training can be seen as the basic level. Its most important sectors are:

1. Updating and widening of one's own knowledge and practical skills.
2. Purposeful and systematic development of one's own leadership behavior.
3. Conscious practicing in conceptual thinking.

This life-long development process is the responsibility of the military leader himself and in the end its driving force can only be innate motivation connected to values and growth needs. In the development of leadership behavior the basic idea is change that takes place with small steps but purposefully nevertheless. At individual level a requisite for change is making a clear development decision and sticking to it. This is the culmination point of the development of leadership which requires from the individual real motivation and willpower. If these basic requirements are lacking, not even the most extensive leadership training program will produce the desired results.

Decision-making takes always courage and it is so in this case as well. Military leaders can serve as examples to younger officers in the handling of feedback and learning from it. Each military leader also has his share of responsibility in the development of the leadership culture in the Defence Forces. The deep leadership questionnaire is available to each military leader whenever and where ever there is a reason to collect feedback on one's own behavior. The question is not only about forms, it is about learning a developing feedback culture.

The second level of development is tied to duty rotation and it is concretized in the development of task-specific potential. In its most typical form this process takes place when a military leader moves to a new post. For the part of the development of leadership

behavior, this process takes place also when people in the area of operations change when, for example, the intake to be trained changes. The goal of this process is task-specific orientation as quickly as possible so that a military leader achieves in his activities the core of the tasks in question. Here 'core' means the activities and behavior of the military leader that achieve the best results in the particular assignment.

Learning at work thus has two levels. Leadership behavior should be continuously and purposefully developed towards deep leadership. On the other hand, each new task or new trainees are always a challenge to the military leader and the challenge should be responded to in a self-directing manner, taking into consideration the goals of activity and situational factors. The military leader's operating environment with its field of tasks may remain the same even for long periods of time. If the individual motivation for service is connected only to duty rotation and career development, the result will not be good for the individual nor the organization.

The service motivation of a military leader should be based on life-long learning and leadership. Especially in instructor duties, a new intake of conscripts always represents a new challenge and it also offers a natural opportunity for the development of one's own leadership behavior from the beginning. This is one of the special characteristics that a peace time military organization has, compared to times of war or a many civilian organizations. Development-wise, this special characteristic is also an advantage, because in leadership training programs carried out as follow-up studies it has been noted that people usually change very slowly their set conceptions and images of other people.

After the actual advanced training and in connection with the courses of the highest command, a competence meter developed especially for this purpose is taken into use. Competencies refer to those features of an individual that predict success in the roles of leadership. The competence meter is divided into four main dimensions:

1) intellectual capacity;
2) purposefulness;
3) professional credibility and
4) leadership behaviors.

The elements of intellectual capacity are the sense of what's essential, the ability to learn and change, organizational awareness, the promotion of fluency and creativity and innovativeness. The factors of purposefulness are the carrying of responsibility, decisive

carrying out of things and independence. Professional credibility is made up of organized activities, extensiveness and commitment to values and goals. In evaluation, the areas of leadership are encouragement towards self-directiveness, human relations skills, intellectual flexibility and encouragement of cooperation.

Competence evaluation is carried out using the principles of full range feedback. Evaluation data is sent from the Defence Forces Education Development Centre to the superior of the individual being evaluated. The superior selects two subordinates of the individual under evaluation and one peer who carry out the evaluation in addition to the superior and self-evaluation. The questionnaire consists of a total of 159 statements that are answered using an evaluation scale that has six steps. In addition to leadership behavior, the competence meter thus produces information about those characteristics related to conceptual thinking that military leaders are considered to need in the highest expert and leadership positions in the Defence Forces. The competence requirements have been defined for command and strategic, operating and expert tasks.

5.5 Evaluating the effectiveness of a leadership training program

The starting point for the assessment of the effectiveness of leadership training is the basic assumption that leadership is the most important way of developing organizations and their cultures. Thus leadership training is the most important tool of controlled change. With leadership it is possible to have an effect on everything that takes place in peace time Defence Forces. Therefore, when measuring for example the quality of training, leadership and the effectiveness of leadership training are indirectly measured at the same time, too (Vuorio, 2001). The following paragraphs present key tools for discovering the effectiveness of leadership in the hierarchy of objectives.

One part of systematic educational planning is evaluation that is related to execution. This makes it possible for the system to be dynamic and self-correcting. Evaluation means clarifying and measuring the results of training (Åhlberg 1992, 1 - 6). When the practical execution of training is analyzed, real self-correctiveness starts from the attitude of each instructor and educator to develop, not from ordered processes.

Several parallel concepts are related to evaluation, the most central of which are effectiveness, economy and productivity. Evaluation of effectiveness, i.e. the analysis of the actual effects of the given training, should take place at all levels that are essential

training-wise. (Lehtinen, 1996.) The evaluation of the leadership training of the FDF should be based on the goal-setting of leadership training. In a systematic approach to the leadership training evaluation, the areas being evaluated are:

1. The basic structure of the leadership training program.
2. Internal evaluation of leadership training at all levels.
3. Personal development of military leaders.
4. Leadership culture at local level.
5. Organization culture in the entire FDF.
6. The impact of military leadership training in the society.

5.5.1 The evaluation of the basic structure of leadership training

The evaluation of the basic structure of leadership training is a central part of the reform process of leadership training, and the results of the evaluation have already had an impact on both contents and method information of the curricula and teaching material of the program. Evaluation is carried out mainly on the basis of feedback information. This information has been collected from the leadership training of both conscripts and personnel.

The personnel, researchers and teachers of the Defence Staff, various units and the National Defence College (NDC) have participated in the collection and analysis of the feedback information. The nature of the evaluation of the program's paradigm-oriented basic assumptions is a long-term research activity. The evaluation of the program's method information is connected to the development of the training system of the entire FDF and it will be carried out within this framework.

5.5.2 Internal evaluation of the leadership training system

Evaluation inside the leadership training system is continuous self-evaluation development at college level. Separating from the results the exact part that is the result of training may be a problem (Piirainen, 1996). At college level, results of effectiveness can be classified in the following way:

- experiences of know-how,
- willingness to develop oneself (motivation result),
- goal-bound performances in learning situations (achievement of goals),

- development of intellectual, social, etc. skills,
- fulfilling the needs of students. (Kilpinen et al, 1995.)

The feedback system of the NDC is one example of efficiency evaluation of leadership training. It has been evaluated, that the process of total quality in evaluating the learning results is in a very high level in the NDC (Laine et al 2001, 12). The feedback system consists of the following parts:

1) *Course feedback*: carried out by the teacher in charge at the end of the course, includes a feedback discussion with students that is based on analyzed numerical feedback; a development memorandum is drawn up.
2) *Annual course feedback*: every year, the degree divisions collect, analyze and report on students' views on the general arrangements of training and the quality of teaching/guidance.
3) *Work environment surveys*: the headquarters of the College collects, analyzes and reports on the views of hired personnel on the requirements, resources and cooperation based on which the main task, i.e. training, is being carried out.
4) *External feedback*: approximately one year after graduation, the degree divisions collect feedback from officers and their superiors in service. The aim of the survey is to find out how well training and especially its short-term aims have responded to the challenges of the duties of service.

This feedback system can be supported with surveys that are department- or subject-specific. For the part of the development of leadership behavior, data in the form of self-evaluation has been collected from cadet courses just before graduation on the attitude towards continuous self-development. When it comes to major questions, the information produced by the feedback system should form the basis of decision-making for the College principal.

5.5.3 The evaluation of military leaders' individual development

Concerning the evaluation of military leaders' individual development, the principle at all levels is that the leader himself is responsible for the collection, analysis and filing of feedback information on his leadership behavior. During the development discussions that are carried out on this basis it is possible to tackle the actual factors of change between a leader and his superior. The leadership portfolio functions as the memory and instrument

of the development of leadership behavior. When the highest leadership of the Finnish Defence Forces is concerned, the evaluation is supplemented with competency assessment, in which information relating to leadership behavior is supplemented by assessing the competencies needed in expert tasks as well as in the roles of operative and strategic level leadership.

5.5.4 Evaluating the leadership culture at local level

Leadership culture at local level is evaluated mostly at the level of annual work environment surveys. In units that train conscripts, regular follow-up surveys that focus on the quality of training function are used as tools of evaluation. This system is further supplemented by conscript and reservist surveys that are carried out at regular intervals. Work environment surveys are targeted at the entire hired personnel. In its current form, a work environment survey yields practical information from individual level to be used in annual follow-up. Among other things, the information deals with:

- the leadership behavior of superiors,
- the division of tasks in a unit,
- work satisfaction,
- work motivation,
- strenuousness of work,
- work space and tools,
- the flow of information in the unit,
- the clarity of objectives,
- cooperation, and
- the willingness of personnel to develop.

The results are also followed and reported at the national level.

Attempts are made to anchor the training results to the amount and quality of the war time troops that are trained. In the final assessment, a 'client's point of view' is taken into account, meaning that the war time commander assigned from the regular personnel is included in the assessment process. The new leadership training sets developmental needs for this process, because the increased responsibility of training and leadership of conscript leaders must be taken into account when assessing the final product. This is particularly important when the aim is to evaluate the personal productivity of an instructor based on the quality of war time troops. Reservist surveys are typically carried out during

refresher training, the aim being to collect information about attitudes towards national defence as well as the structure and execution of the refresher training in question.

5.5.5 Evaluating the organizational culture of the FDF

The organizational culture of the FDF can be assessed by combining and synthesizing the results of the feedback system targeted at leadership culture. The development of the new leadership training program began for contents and method information as a kind of pilot project in the teaching of cadets at the NDC in fall 1995. Feedback and experiences acquired from the teaching of cadets were exploited in the further development of contents and method information. The training of conscript leaders was renewed using the intake II/98 whose service started in July; the renewal process was led by the Training Division of the Defence Staff.

On these grounds, it is possible to estimate that at company level, the timing of the first milestones of the real evaluation will probably be around year 2006. At that point, the majority of company commanders and all the young instructors will have received new leadership training and the basic structures of the program, like feedback systems, have become established. Effectiveness can then be assessed with the previously presented meters and results can be reported like follow-up studies. It will be possible to begin to answer the question: *Is leadership culture changing*? In this case the basic assumption is that if leadership culture is noticed to be changing towards deep leadership, it will be shown as development and productivity of activities as well as enhanced motivation and satisfaction among all personnel groups.

Organizational culture has to do with long term follow-up and research. Because leadership culture is a central part of organizational culture, tentative conclusions can be made for a ten-year timespan. In the effectiveness of leadership training, the decisive phase is when all personnel in service has received leadership training that is based on deep leadership. This will naturally take several decades to happen.

5.5.6 Evaluating the effects of the leadership training of the FDF in the Finnish society

Evaluating the effects of the leadership training of the FDF in the Finnish society is a new area of research. Organizing and developing research in this area requires increasing

cooperation in research between the defence forces and the surrounding society, as have already been done in the book “Johtajakoulutus murroksessa” (Nissinen & Seppälä, 2000). To the researchers of the FDF, the new tools of leadership behavior evaluation offer opportunities for various follow-up and cohort studies. There are also no unsurpassable obstacles in sight for research that focuses on the follow-up and success of persons in their civilian life who had received leadership training during their conscript service.

5.6 An example of an evaluation study of a leadership training program

McCauley and Hughes-James (1994) have evaluated the effectiveness of leadership training in their study "An Evaluation of the Outcomes of a Leadership Development Program". It is a longitudinal study of a leadership training program that attempted to develop the leadership behavior of school district principals. A year-long process of training and follow-up included regular teaching in the form of courses, carrying out development plans that were based on feedback, keeping a leadership journal (in the form of a portfolio) and using experienced superiors as the instructors and coaches of the trainees. The participants reported three types of results on the leadership training:

1. *Development in the area of methods and skills*: development of reflective thinking, self-knowledge, real interaction and the understanding of the principle of continuous learning.
2. *Changes at the level of personal capabilities*: development in the ways of thinking, problem solving models and the control of one's own feelings.
3. *Improvement in the productivity of the work unit*: measured with hard meters as well.

The scientists present three observations as their own conclusions. The development of leadership is needed at all levels of organizations. Programs that start off by strengthening attitudes towards development and analyzing personal leadership behavior are flexible and function throughout life. Self-directedness develops best if classroom teaching is expanded to learning at work, using a coach and keeping a leader diary.

The results presented are very encouraging, because all elements that are included in the previously reported study are included as long term factors in the new leadership training program. Purposeful emphasis must be placed on the support of the execution of the program, though. Even though the basic ideas of contents information represented by

deep leadership can be shown to be permanent, carrying out the entire program in a military organization is a concrete change, and the general rules and opposing forces of change apply to it.

There is great faith that the change will take place, though, because the positive feedback and the long-lasting encouragement of improved results that relate to deep leadership and the experience of it push the change forward. The new leadership training program thus includes a vision of leadership training as a strategic factor of success for the FDF as well as the entire society.

PART II

MODELING LEADERSHIP BEHAVIOR

"To refute the transactional-transformational distinction will require finding conditions, cultures, and organizations in which trust between the leader and the led is unimportant and the led have no concern for self-esteem, intrinsic motivation, consistency in self-concept, actions taken for the leader, or meaningfulness in their work and lives. Such contexts are likely to prove to be the exception rather than the rule."

Bernard M. Bass (1997, 137)

6. PREVIOUS RESEARCH ON TRANSFORMATIONAL LEADERSHIP AND MODELING LEADERSHIP BEHAVIOR

In this chapter I will review some latest research on the new paradigm of leadership and especially on transformational leadership. Beyond some general observations, empirical research on modeling leadership behavior is the key issue of interest in this chapter. The analysis and conclusions concerning the studies reviewed in the following paragraphs create basis for modeling military leadership behavior in the FDF. In together with the purely conceptual analysis introduced in the first part of this study, the synthetized findings of previous empirical research form a practical framework for developing the Deep Leadership Model (DLM) and the Deep Leadership Questionnaire (DLQ).

In their conceptual research Donohue and Wong (1994) attempt to unify research on transformational leadership in a way that serves military command. The researchers criticize the way that the concept of charisma has been used in the research of leadership. They think that the core of the vitality of transformational leadership is in the fact that it can open and unravel charismatic leadership that has earlier remained rather mystical into concrete leadership procedures. Donohue and Wong compare transformational and transactional leadership according to Table 1. (Donohue & Wong 1994, 24 - 25.)

	Transactional	**Transformational**
Leader´s source of power	Rank, position	Character, competence
Follower reaction	Compliance	Commitment
Time frame	Short term	Long term
Rewards	Pay, promotion, etc.	Pride, self-esteem, etc.
Supervision	Important	Less important
Counseling focus	Evaluation	Development
Where change occurs	Follower behavior	Follower attitude, values
Where "leadership" found	Leader´s behavior	Follower´s heart

Table 1. A comparison of transactional and transformational leadership (Donohue & Wong 1994, 25).

Transformational leadership begins from a vision. A clear and appealing vision is a key part of most successful efforts to transform people and influence their commitment to major change in organizations (Portugal & Yukl 1994, 274). The vision of a

transformational military leader is more than an order given to a unit or the commander's operative concept of operation.

It is a value or a cluster of values that at best gives a foundation for the activities of every soldier. There are nevertheless very short-lasting situations in which transactional leadership offers the best tools to a leader. An excellent military leader can, like Bass (1985) proposes, use both transactional and transformational leadership. Various variables, like organizational culture, the duty of the unit, the leader's own experience and the situation often decide to what extent different dimensions can be used.

Still, according to Donohue and Wong, one of the most significant factors is the level of leadership. They see that a rise in the level of leadership increases the opportunities and the need for the application of transformational leadership. The final test of military command is a situation in which a group carries out its task without its leader and without supervision. The researchers do not consider the new paradigm of leadership to be a new thing; new is only its framework and the model that can be used to turn the phenomenon behind the paradigm into concrete leadership behavior. (Donohue & Wong 1994, 26 - 31.)

6.1 Research on the modeling of transformational leadership

I will review research that has used different versions of the Multifactor Leadership Questionnaire (MLQ) that has been mainly developed by Bernard Bass and Bruce Avolio. Bass has developed this meter alongside the modeling of leadership behavior based on empirical research. For comparison, I will report research on three similar meters that contents-wise are also based on the new paradigm of leadership. When considering theory formation, it must be recognized that the meters in question are tools of personal feedback first and tools of theory formation second.

6.1.1 The modeling of leadership behavior with five factors (MLQ)

In his book "Leadership and Performance Beyond Expectations" (1985) Bass empirically studies with factor analyses whether his assumptions hold true, using a meter of 73 questions that he calls Multifactor Leadership Questionnaire (MLQ) (Bass 1985, 201 - 206). In the study five factors of leadership behavior were isolated. The three first factors describe transformational leadership and the two last factors describe transactional leadership:

1. Charisma.
2. Individualized consideration.
3. Intellectual stimulation.
4. Contingent reward.
5. Management as expected. (Bass 1985, 230.)

Furthermore, Bass isolated from his questionnaire three dimensions that describe the effects of leadership behavior:

1. Extra effort.
2. Satisfaction.
3. Efficiency. (Bass 1985, 213 - 219.)

After combining the results obtained from both military and civilian organizations (subordinates evaluate their superiors), Bass (1985) draws the following conclusions from his data:

- the area of transformational leadership can be covered with three factors,
- the area of transactional leadership can be covered with two factors,
- each factor can be brought out in individual profiles with high reliability,
- individual evaluations of a leader are fairly similar to each other, and
- as the model assumes, transformational leadership produces greater satisfaction and efficiency and makes subordinates try harder than transactional leadership. (Bass 1985, 229.)

Bass also studies the concepts of charismatic and inspiring leadership, finding a hierarchy in which charismatic leadership is a part of transformational leadership and inspiring leadership is a part of charismatic leadership. Furthermore, leaning on earlier research, Bass perceives the concepts ’individualized consideration’ and ’intellectual stimulation’ as a part of the entity of transformational leadership. (Bass 1985, 33 - 206.)

Later on, Hater and Bass (1988) report an empirical study, the purpose of which was to confirm earlier assumptions of the modeling of leadership behavior (Bass 1985). The number of leaders being evaluated was 54, which finally proved to be too few in order to achieve statistically significant results. In the first phase of hierarchical regression analysis the dimensions of transactional leadership surfaced and in the second phase the dimensions of transformational leadership were brought out. The result supports Bass’s augmentation hypothesis according to which transformational leadership is a part of the

same, but extended, dimension as transactional leadership. (Hater & Bass 1988, 695 - 698.)

The leaders were divided into two groups according to the result meters of corporations. A statistically significant difference between the groups was noted in charisma and intellectual stimulation in relation to the effects of leadership. Significant differences were not noted with the dimensions of transactional leadership. The result supports the hypothesis that transformational leaders achieve better results in their organizations. Because of the small size of the sample, no reliable results on whether productivity can be predicted with the dimensions of transformational leadership could be obtained using regression analysis. In connection with the analysis of the research results, the researchers note as an additional assumption that the effects of transformational leadership are emphasized the more subordinates are willing to fulfill their (growth) needs of the highest level (Hater & Bass 1988, 699 - 702).

Two years later Seltzer and Bass (1990) attempt to strengthen the assumption of paradigm that transformational leadership explains the effects of leadership, i.e. subordinates' extra effort, satisfaction and the efficiency of leadership as evaluated by subordinates better than other dimensions of leadership. The effects of leadership on efficiency were studied so that the leadership evaluation of each leader being evaluated as well as the efficiency evaluation was based on feedback from separate subordinates. The sample of the study was 58 leaders evaluated by 138 subordinates. The meters used were the MLQ (transformational factors and extra effort), Stogdill's (1963) Leader Behavior Description Questionnaire (LBDQ) of leadership behavior (initiative, taking care of subordinates) and Bass's effect meter (satisfaction, efficiency). The data was studied with correlation matrices and hierarchical regression analysis. (Seltzer & Bass 1990, 693 - 700.)

The first thing to be researched was whether transformational leadership explains outcomes even after the dimension of leadership behavior of the LBDQ. Hierarchical regressions using the responses of 138 subordinates about 55 managers show that, as predicted, Bass's (1985) transformational leader model adds to initiation and consideration in explaining the variance of subordinates' satisfaction and ratings of leader effectiveness. The correlations of transformational leadership to efficiency were .56 (charisma), .49 (individual consideration) and .46 (intellectual stimulation). The correlation of charisma to satisfaction was .70, as was the correlation of intellectual stimulation to extra effort. The

researchers note that the dimensions of leadership behavior seem to vary also in whether effect is created through an individual or a group. (Seltzer & Bass 1990, 701 - 702.)

In their study Bycio, Allen and Hackett (1995) continue testing Bass's assumption about three transformational and two transactional dimensions of leadership and their connection to effects (satisfaction, efficiency, willingness to try, commitment to organization and intention to quit). The sample consisted of 1 376 nurses. Data was collected with the first version (1985) of the MLQ. The structure of the model was studied with LISREL VII -program, the augmentation hypothesis was studied using hierarchical regression analysis and correlation analysis was used to study the connections between dimensions of leadership. (Bycio et al 1995, 468 - 471.)

In the analysis the nonformed fit index (NNFI) -value of the five factor solution assumed by Bass was .89 and its goodness-of-fit (GFI) index was .82, the degree of freedom being 730. The researchers considered the results to be encouraging, even though the level of .90 which is considered acceptable was not reached as far as the indexes are concerned. Correlative analysis shows a strong connection between transformational dimensions and effects. Regression analysis revealed that when using the dimensions of leadership to predict effects, the dimension of charismatic leadership alone predicted the effects almost as well as all leadership dimensions together. It was also interesting that commitment to organization correlated in a strong and positive way to the dimensions of transformational leadership but not to encouragement with rewards.

As conclusions the researchers present that the model needs further improvement. The psychometric development of the MLQ was also recommended. From the viewpoint of leadership training, the study of the dimensions of transformational leadership is extremely important so that it is possible to find out whether the question is about a phenomenon that is one-dimensional in practice, or can transformational leadership be divided into several dimensions as suggested by Bass. (Bycio et al 1995, 472 - 477.)

6.1.2 The modeling of leadership behavior with eight factors (MLQ)

In their book "Improving Organizational Effectiveness Through Transformational Leadership" (1994) Bass and Avolio present the conception of the basic assumptions and modeling of transformational leadership they had at the time. The book also includes other researchers' articles that approach transformational leadership from the viewpoints of

team work, decision-making and strategic change, among others. According to Bass and Avolio, transformational leadership includes the following behavioral models. A leader:

- stimulates subordinates and colleagues to see their work from a completely new viewpoint,
- strengthens awareness of the task, the goal and the vision at both individual and organization level,
- develops the skills and potential of his colleagues and subordinates and
- gets his colleagues and subordinates to see the benefit of the group instead of their personal interests.

Transformational leaders can get more out their subordinates than transactional leaders and make them perform better than they even thought possible. When goals are set high enough, it is possible to achieve something significant. Transformational leadership expands the traditional concept of leadership. It is not a separate style or way of leadership, but a comprehensive approach built on transactional leadership culture. In transactional leadership the exchange between a leader, colleagues and subordinates at an intellectual level is emphasized. The exchange means the dialogue a leader has with the others about what is expected of them and what are the rewards for successful performances. (Bass & Avolio 1994, 2 - 3.)

Transformational leadership expands the level of interaction of transactional leadership with outstanding leadership behavior and according to Bass and Avolio (1994), it is described with following four factors. Bass and Avolio call these four transformational factors the four “I´s” (see Figure 15).

Idealized influence (II). The leader always offers his subordinates a model of behavior. Leaders are trusted, respected and even admired. Subordinates identify with their leader. Leaders can set the needs of their subordinates before their own. Risks are considered shared. The ethical and moral foundation for leadership is strong. The leader uses his legitime power rarely and never to achieve personal benefit.

Inspirational motivation (IM). The leader gets his subordinates to find new contents, features and challenges from their work. Group unity increases. Trust in the future and optimism strengthen the organization. Leaders are able to include their subordinates in the visioning of goals. Leaders can clearly summarize the demands of each subordinate's work, and they create commitment with shared visions. Emotional encouragement and

support is a part of this model of behavior. The leader emphasizes the importance of shared responsibility, goals and trying, visioning situations where the common good comes before the benefit of an individual.

Intellectual stimulation (IS). The leader supports the innovativeness and creativity of his subordinates by questioning basic assumptions, seeking new solutions to problems and new views to work. Creativity is encouraged. The mistakes of an individual are not punished in public. Subordinates are asked to offer their ideas and they are included in problem-solving processes. Subordinates are allowed to try new solutions and they are not expected always to agree with the leader.

Individualized consideration (IC). The leader sees everyone's individual needs to grow and develop and he functions as a coach of some sort. There is an attempt to productively utilize the entire capability potential of subordinates and colleagues. In an encouraging environment, opportunities are offered to learn new things. Individual needs are taken into account in practice as well. It is visible in the behavior of the leader that he accepts the individual differences between people and he acts accordingly. Feedback is two-way and the leader spends much time among his subordinates. Interaction is individual, because the leader remembers earlier discussions, knows his subordinates personally and treats each of them as individuals, not only as employees or subordinates. The leader is a good listener. The leader delegates tasks in order to develop his subordinates and he supports them in the performance of their duties.

Transactional leadership is described with the following three factors.

Contingent reward (CR). Leadership that encourages with rewards means the follow-up of the performance and effectiveness of individuals, groups and the entire organization in relation to set goals. Feedback on performance is given with external incentives that can be either positive or negative. External incentives (salary, position, status, praise, possibilities to participate, etc.) are supplied by the organization or its representative (the superior). They primarily fulfill lower-level needs and are objective and concrete. At this stage leadership also includes the fairness, honesty and equality of the leader and the following of procedures agreed upon.

Active management-by-exception (MBE-A). An active manager continuously keeps an eye on whether things are going according to instructions and procedures that were either

ordered or agreed upon. When he notices a procedure that foretells a problem situation or a deviation from a standard agreed upon, he intervenes immediately and corrects the mistake or wrong behavior that took place. The manager is a good organizer and masters well the management process and the use of time.

Passive management-by-exception (MBE-P). A passive manager mainly works alone. He intervenes only when the mistake has already happened and the powers of the subordinates are not enough to resolve the issue. The basic structure of the organization is functional and the manager assumes it is enough to get the work done.

Laissez-faire -leadership has been separated by Bass and Avolio as its own dimension. *Laissez-faire -leadership (LF).* A 'laissez-faire' -leader does not take a stand on anything, does not want anything to do with people or is not even available to his subordinates. Instead, he avoids responsibility and runs from problem situations. In such a case, leadership slides to the inside of the organization and becomes the responsibility of an unofficial leader. (Bass & Avolio 1994, 3 - 4.)

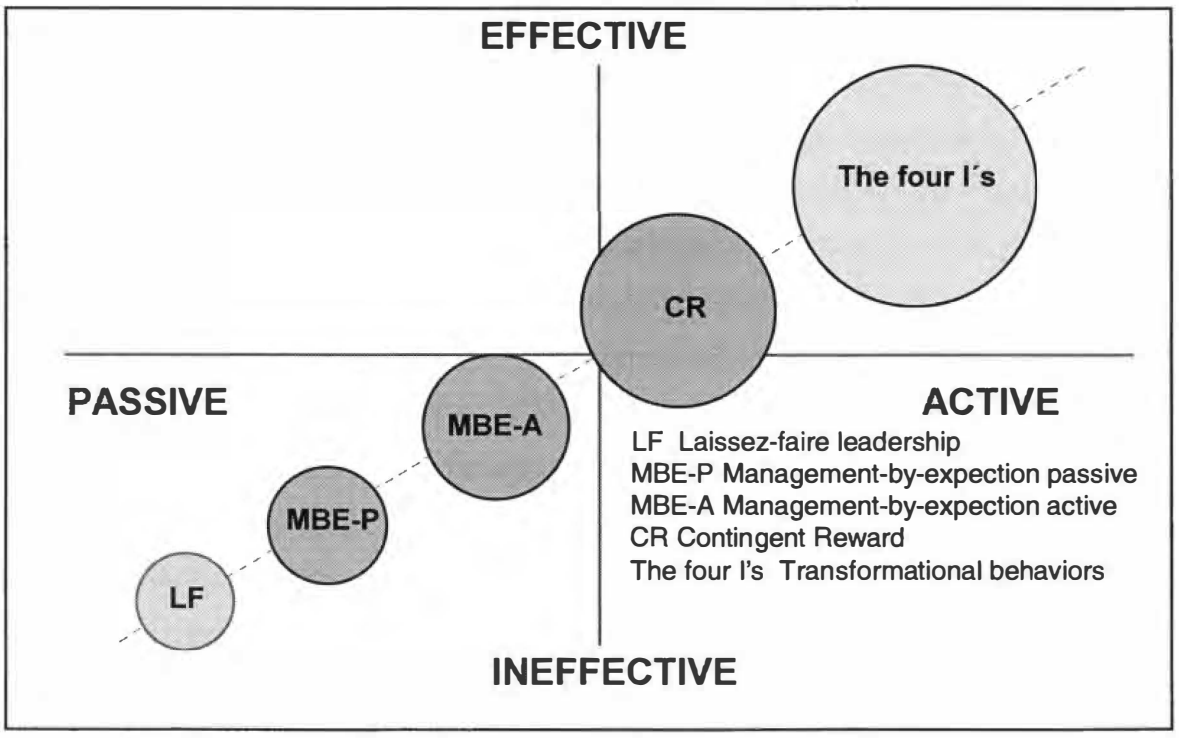


Figure 17. The optimal profile of a leader (Bass & Avolio 1994, 5)

Bass and Avolio have expanded their model significantly compared to the first version of Bass's (1985). There is now one additional factor in transformational leadership, as there is one additional factor in transactional leadership, as well. Laissez-faire -leadership is

considered to be the third main dimension, even though it contains only one factor. The optimal profile of a leader is presented in Figure 17.

Bass and Avolio present as their conclusions that each leader sometimes uses all forms of leadership behavior mentioned earlier. An optimal leadership profile contains as few lower levels of transactional leadership as possible and emphasis is on the factors of transformational leadership. (Bass & Avolio 1994, 5.)

Den Hartog, Van Muijen and Koopman (1997) have conducted a validity study using a version of the MLQ that is based on Bass and Avolio's eight variable assumption (version MLQ-8Y). Altogether 787 leadership evaluations were collected from eight Dutch corporations that represented different lines of business. The aim of the study was to test the factor structure of the MLQ. (Den Hartog et al 1997, 19 - 24.)

From their data Den Hartog, Van Muijen and Koopman report the following results:

1. Passive management is more strongly connected to 'laissez-faire' leadership than to the transactional main dimension.
2. The results support the hypothesis of three main dimensions (transformational vs. transactional vs. 'laissez-faire').
3. The data did not divide in an understandable manner into more than four factors, so the eight factor assumption could not be confirmed with explorative factor analysis.

Nevertheless, the researchers think that especially for training purposes it is appropriate to divide also the transformational dimension into more factors. (Den Hartog et al 1997, 20 - 33.) Criticism can be directed at the Dutch research methods, because there is a hierarchical relationship between the main dimensions and factors of leadership behavior. Because of this hierarchical relationship, confirmatory factor analysis and structure equation programs developed for the study of hidden structures should be used in the analysis.

In his latest book "Transformational Leadership" (1998) Bass collects, analyzes and evaluates research relating to the transformational paradigm. Research on military command is still strongly on the surface; I will return to this area of research later. At this stage the dimensions of modeling leadership behavior are still the same as in 1994. What is new is the term Full Range of Leadership (FRL). (Bass 1998a, 3.)

In the meta-analysis of modeling, Bass specifies the relationship between factors that describe leadership behavior and efficiency within the dimension of transformational leadership so that the factor of charismatic/inspirational leadership correlates most strongly with efficiency (see Table 2), followed by intellectual stimulation and individual consideration, as presented in the next table. (Bass 1998a, 9.)

	Sectors	
Leadership	**Public (N=2873)**	**Private (N=4242)**
Transformational		
Charisma	0,74	0,69
Intellectual stimulation	0,65	0,56
Individual consideration	0,63	0,62
Transactional		
Contingent reward	0,41	0,41
Managing-by-expection	0,1	-0,02

Table 2. Correlations with effectiveness in public and private organizations (Bass 1998a, 9).

Bass also reports qualitative research that supports the assumptions of the paradigm and its modeling (FRL). Qualitative research has been carried out, using subordinates' observation diaries and interviews as methods. When it comes to the paradigm, Bass notes that as a phenomenon it has existed throughout human history. What is new is the modeling of the paradigm, which offers a reliable framework for the observing and measuring of leadership behavior. The paradigm does not undo earlier research on leadership; instead, it rises above it to combine different views. (Bass 1998a, 16 -17.)

6.1.3 The modeling of leadership behavior with six factors (MLQ)

The study of Avolio, Bass and Jung (1998) has collected 14 independent research data, the overall sample of which is 3 786 respondents. Leadership behavior-wise, the researchers take as their starting point a model that consists of six factors:

1. Charismatic/inspirational leadership.
2. Intellectual stimulation.
3. Individualized consideration.
4. Contingent reward.
5. Active management.

6. Passive/laissez-faire -leadership. (Avolio et al 1998, 1 - 8.)

Compared to the previous model of eight factors (Avolio and Bass, 1994), combined factors in this model are charismatic/inspiring leadership and passive/'laissez-faire'-leadership. The researchers carried out their analysis using the LISREL VII -program. All factor solutions from one to seven factors were tested. In the first stage, the six factor solution with maximum likelihood (ML) -estimate received the value .73 with 13 degrees of freedom. The result cannot be considered satisfactory.

The researchers began to tune their data by deleting questions that cross-loaded on transformational dimensions. At the same time they attempted to increase the practicality of the MLQ. After the item trimming, 36 questions remained in the MLQ. The six factor model functioned in the factor analysis as expected and in structural analysis it achieved the goodness-of-fit index (GFI) .91, which the researchers considered satisfactory at this stage. (Avolio et al 1998, 16 - 23.)

When analyzing their results, the researchers consider it a good starting point that other studies have also managed to separate from each other the three higher level factors - transformational, transactional and 'laissez faire' -leadership. Within this assumption it is possible to find different lower level factor solutions especially to the needs of leadership training. It is necessary that research would be expanded more strongly to qualitative area as well. Participatory observation and different interview studies would bring new insight to quantitatively oriented research. This would be important from the viewpoint of leadership training, too. (Avolio et al 1998, 28 - 29.)

Criticism is also justified. The data of the study is primarily collected in conditions that the reporters of the study have not been able to control. It is impossible to say whether there is adequate knowledge of the person being evaluated behind individual evaluations. Similarly, the level of the evaluated superiors in an organization is an unknown variable that affects overall analysis. From the viewpoint of the renewed leadership training program of the FDF, perhaps the most significant individual longitudinal study that is still going on is the cooperation research project led by Bass and Avolio with the U.S. Army Research Institute (ARI). The results of this study are reported in more detailed in the next section. Modeling-wise it is interesting to note that the researchhas been carried out with a special military version modified from the MLQ. After confirmatory factor analysis, it was

considered appropriate for use in the evaluation of leadership behavior in a military organization. The analyses were carried out using the LISREL VII -program.

Before analysis, those questions that loaded too strongly on more than one factor were removed from the questionnaire. Thus 23 questions remained for the actual analysis and on the basis of those 23 questions, the researchers ended up with the six factor model. The factors were (the number of loading questions in parenthesis):

1. Inspirational motivation (6).
2. Intellectual stimulation (4).
3. Individualized consideration (3).
4. Contingent reward (3).
5. Management-by-expection, active (2).
6. Passive leadership (7).

This factor solution received the GFI-value .923 with 215 degrees of freedom. The researchers consider the appropriateness of the model adequate at this point. (Bass & Avolio 1998a, 10 - 32.) However, it was necessary to trim a notable number of questions from the basic version of the MLQ for the military organization. After the trimming, for example only two questions remained loading on the fifth management-by-expection factor. Further on, the charisma-factor was totally eliminated. These results refer to the conclusion that beyond the three main dimensions of leadership behavior (transformational - transactional - passive), the most valid factor structure is heavily dependable on the operating environment.

6.2 Modeling leadership behavior with meters other than the MLQ

6.2.1 Leadership Practices Inventory (LPI)

Kouzes and Posner (1990) believe that leadership is a skill that has divided normally in a population. Still even the most extensive longitudinal studies have failed in their attempts to predict success as a leader. This has directed interest from the qualities of a leader to what leaders actually do. The study of leadership is moving towards the new paradigm of leadership. In their study Kouzes and Posner attempt to combine qualitative and quantitative methods to model and study leadership. (Kouzes and Posner 1990, 205 -206.)

At the different stages of data collection, a total of 1 300 leaders at different levels were interviewed and the results were specified with deep interviews. The main question of the interviews was: *"What makes leadership outstanding?".* Thus the setting of the question sought an exceptional quality that separated outstanding leaders from good and not so good leaders. The results were formed into five main dimensions inside which over 80% of all arguments can be placed:

1) challenges the system: seeks opportunities and takes risks;
2) inspires towards a common vision, forms an image of the future and involves subordinates;
3) strengthens preconditions for activities and cooperation, supports subordinates;
4) acts as an example and sets intermediary goals that can be reached and
5) emotional encouragement: recognizes needs for help and celebrates achievements.

A meter called the Leadership Practices Inventory (LPI) was developed for the measuring of the described dimensions. The meter is based on feedback from subordinates. The scale was again like the Likert-type. The survey was developed by 120 university students as a result of careful, multi-phased analysis and experts of various fields were included in the process.

The sample with which the LPI was tested was 708 leaders and 2 168 subordinates. Because the leaders represented various fields, organizations and cultures (the sample included leaders from Europe and Australia), the results' ability to be generalized can be considered good. At all stages of the test, statistical significance was tested at the risk level .01. The responses of subordinates went straight to the researchers, the leaders were not told of them. Much attention was paid to the meter's internal reliability. According to the results obtained, the reliability of the dimensions settled between .77 - .90. When the study was repeated, reliability was .94. Social desirability related to the meter was measured with the Marlowe-Crowne Personal Reaction -survey. Statistically significant connections to the LPI were not found concerning social desirability.

Alongside the LPI, a dimension describing the efficiency of leadership (six questions) was developed and it was used to chart the leader's ability to manage. Questions measuring subordinates' satisfaction were also included in the meter and the reliability of those questions was again found to be good. The analysis of the results of the LPI was

commenced on the basis of subordinate evaluation using regression analysis. Each dimension of the LPI formed its own independent factor in the analysis. According to the results, with the LPI it was possible to explain 55% (R=.756) of subordinates' satisfaction with the efficiency of their leader. (Kouzes and Posner 1990, 210 - 212.)

In their book "The Leadership Challenge" (1995) Kouzes and Posner further refine the thoughts and results of their study. They represent clearly the new paradigm of leadership, but they want to remain apart from transformational leadership: the book refers only once to the early work of Burns (1956). Nevertheless, the thinking of the researchers is very close to transformational theory, as the book's only reference to Bass shows:

> "*Bernard M. Bass... has investigated the nature and effects of two types of leaders: transformational and transactional. Transformational leaders closely resemble the leaders we describe in this book, inspiring others to excel, giving individual consideration to others, and stimulating people to think in new ways. Transactional leaders, on the other hand, tend to maintain a steady-state situation and generally get performance from others by offering rewards. The transactional leader closely resembles the traditional definition of the manager.* (Kouzes & Posner 1995, 320 - 321.)

6.2.2 Transformational Leadership Behavior Inventory (TLI)

Podsakoff, MacKenzie and Bommer (1996) study transformational leadership in relation to Kerr and Jermier's theory of substitutes for leadership model. The study is interesting because the researchers use the Transformational Leadership Behavior Inventory (TLI) -meter that they have developed and validated themselves. The six dimensions of the TLI are:

1) Articulating a vision.
2) Providing an appropriate model.
3) Fostering the acceptance of group goals.
4) High performance expectations.
5) Providing individualized support.
6) Individualized consideration. (Podsakoff et al 1996, 265.)

The substitution theory stems from the assumption that situation-bound variables either replace, neutralize or strengthen the outcomes of leadership in a certain situation. The

variables may be related to the potential and tasks of subordinates and the special features of the organization. The aim of the study was to find out whether there is a connection between the leadership substitute theory (situational variables) and transformational leadership behavior.

The sample of the empirical study consisted of 1 539 respondents from various enterprises and corporations in the United States and Canada. The outcomes of leadership were studied on the basis of self-evaluation as well as with external outcome meters. (Podsakoff et al 1996, 259 - 266.)

The study juxtaposes the outcomes of the activities of the leader in relation to the operating environment as the shapers of the meaning perspectives of subordinates. Meaning perspectives were studied with the dimensions of satisfaction, commitment to the organization, trusting the leader, division of work, role conflicts and work performance, among others. In this comparison, the behavior of the leader had a stronger effect on the meaning perspectives of subordinates than the entire operating environment only in one dimension: *trusting the leader*. The result is explained by two dimensions of leadership behavior: providing of an appropriate model (.63) and providing individualized support (.59). Because the variables of the operating environment have in most cases a greater effect on the meaning perspectives of subordinates than the behavior of the leader, the researchers note that regression analyses without environmental variables may give misleading results. (Podsakoff et al 1996, 285 - 293.)

Generally speaking the connections between the substitution theory and transformational leadership behavior were found to be few. On the other hand, the researchers remind that the study of both the leaders and leadership must take into account contextual variables as the starting point of extensive analyses. (Podsakoff et al 1996, 294 - 295.)

For the theory of transformational leadership, the above-mentioned study gives reasons for criticism. The new paradigm of leadership does not assume that contextual variables do not have any importance in the formation of the meaning perspectives of subordinates. It is assumed, however, that transformational leaders always have much stronger effect on the formation of the meaning perspectives of their subordinates than transactional leaders. Podsakoff, MacKenzie and Bommer (1996) did actually not study this assumption of the paradigm.

6.2.3 Managerial Practices Survey (MPS)

In his book “Leadership in Organizations”, Yukl (1998) reports the main stages related to the development of the Managerial Practices Survey (MPS). A more detailed report on the development of the MPS is found in the separate study published by Yukl, Wall and Lepsinger (1990). The MPS is based on a 14-part taxonomy that Yukl ended up with using results from earlier empirical studies, theoretical deduction, expert groups and factor analyses. The MPS was developed to support the taxonomy. The 14 factors of the meter are:

1. Planning and organizing.
2. Problem solving.
3. Clarifying roles and objectives.
4. Informing.
5. Monitoring operations and environment.
6. Motivating and inspiring.
7. Intellectual stimulation.
8. Consulting and delegating.
9. Supporting and mentoring.
10. Coaching.
11. Building teams and managing conflicts.
12. Networking.
13. Recognition.
14. Rewards.

Conceptually it is easy to find from Yukl's taxonomy a connection to transformational leadership and its factors. In their study Tracey and Hinkin (1999) have compared Bass's MLQ -meter and Yukl's MPS -meter. The aim was to find out the psychometric nature of these two meters and prediction validity using two independent criteria that measured the satisfaction of subordinates and the efficiency of leaders. The data of the study was collected as a postal survey in the United States from middle leadership superiors in the hotel business. In the survey they had to evaluate their own closest superior. The response data consisted of a sample of 291 respondents.

Of the version 5X of the MLQ (eight factor solution), the four factors describing transformational leadership behavior were used. Only four factors of the MPS were also used and the factors were 1) clarification of goals and tasks, 2) motivating and inspiring, 3)

supporting subordinates, and 4) building teams and solving conflicts. The researchers' justification for using just these four MPS -factors remains a bit unclear on the basis of the research report (Tracey & Hinkin 1999, 3 - 4.)

In the confirmatory factor analysis the MLQ received a GFI .77 (with 696 degrees of freedom; $p<.01$). Similarly the MPS received a GFI .91 (with 203 degrees of freedom; $p<.01$). The structural validities of both meters varied between .84 - .92. Likewise both meters correlated positively and statistically significantly to both the satisfaction of subordinates and efficiency. For the MLQ, notably high correlations between factors were reported. The researchers think that the version of the MLQ they used was not satisfactory according to the goodness-of-fit values.

For the regression analysis, the four factors of the MLQ were combined into one dimension describing transformational leadership behaviors. When predicting the satisfaction of subordinates, only the 'building teams' factor of the MPS received a non-significant beta-value. When predicting the efficiency of the leader, the MPS -factors 'supporting subordinates' and 'building teams' were without significance.

As conclusions Tracey and Hinkin propose that version 5X of the MLQ has to be developed if there is a wish to separate the factors of transformational leadership from each other. The connection between the meters remained unclear in the study, because despite strong correlations between the meters, the MLQ seems on the basis of regression analysis to include something that the MPS does not.

When evaluating the validity of the study of Tracey and Hinkin, it must be noted that they used satisfaction and efficiency as criteria to be predicted and even then evaluated by subordinates. In order to get a reliable picture of the effects of leadership behavior and the validity of such meters, a more relevant and independent outcome criteria have to be used.

Beyond the meters introduced already, there is a numerous number of different questionnaires developed around the world for different contexts and organizations on transformational leadership. For example, Carless (1998) has studied sex differences in leadership behavior. She used three different measures of transformational leadership: MLQ, LPI and the Global Transformational Leadership Scale (GTL), which is a seven item scale designed by Carless and her fellow researchers. (Carless, 1998.)

6.3 Research on transformational leadership in schools

Transformational leadership has in the 1990s been greatly researched in various organizations and cultures around the world. Most of the research is empirical, and various versions of Bass's MLQ have been used mainly to measure leadership behavior. In his book Bass (1998a) reports studies that have been carried out in corporations, industry, state administration, military organizations, schools and universities and in several non-commercial public communities. (Bass 1998a, 8 - 10.) In the following sections I will review some of the research that is most interesting in the point of view of education and military organizations.

Leithwood (1992) has studied the manifestation and application of transformational leadership in schools. On the basis of his first studies, Leithwood finds empirical support for his hypotheses, according to which transformational school leaders:

- help personnel maintain and develop cooperation-oriented and highly professional school culture,
- further the development of teachers, and
- help teachers solve problems together more efficiently than before. (Leithwood 1992, 9 - 10.)

Liontos (1993) confirms Leithwood's observations in her qualitative case study, the subject of which was the leadership profile of a transformational school principal. Kirby, Paradise and King (1992) use Bass's MLQ (version 5X) in studying the extent to which transformational leadership exists in schools and what is the connection between leadership and the noted outcomes, especially satisfaction and efficiency. The sample of the quantitative study was collected from different levels of school leadership so that the majority of evaluated leaders (88 / 85,4%) were school principals. The basic correlations between leadership behaviors and outcomes are shown in Table 3. The qualitative data is based on descriptions of a sample of 58 students on exceptionally good leadership behavior and its probable effects. (Kirby et al 1992, 303 - 308.)

From the qualitative data, i.e. the narratives of the students, the researchers drew the conclusion that a leader must make possible the professional development of his subordinates. The improved performance of subordinates is not a result of the leader's personality as such, but his leadership behavior. Excellent leadership behavior is not a magical, unexplained phenomenon. The researchers commit themselves to the entity of

transformational leadership behavior, but they see the operationalization of charismatic leadership as problematic. They also criticize the MLQ because it confuses behavior and outcomes. (Kirby et al 1992, 309.)

Leadership scale	**Satisfaction**	**Effectiveness**
Charisma	0,89*	0,77*
Individualized consideration	0,79*	0,69*
Intellectual stimulation	0,76*	0,74*
Inspiration	0,76*	0,64*
Contingent reward	0,57*	0,49*
Management-by-expection	0.02	0.17
Laissez-faire	-0,64*	-0,58*
** p<.001.*		

Table 3. Pearson product-moment correlations between MLQ leadership scales and outcome variables (Kirby et al 1992, 305).

Schools are facing a similar change in their operating environment as other organizations. Brown (1993) sees in this framework that transformational leadership is very necessary to schools:

> "*Transformational leadership, then, is about vision, and working with others. It is about respect for people, and allowing, encouraging the growth of others. It is concerned with influencing people to work willingly for group goals. It is not as much concerned with the power of the leader as it is with empowering others; it is concerned with growth rather then control. It is shared leadership, where school leaders, with or without formal leadership roles, use various strategies to change the culture of the school in school improvement efforts.*" (Brown 1993, 19.)

Taylor (1994) criticizes Brown's attitude towards transformational leadership and brings out Senge's thoughts on the management of learning organizations, in which the essential is the process of building a vision, which must be supported with systematic conceptual thinking and learning in teams. These processes are not in conflict with transformational leadership, though. (Taylor 1994, 13 - 16). Sheppard (1996) sees that instructional leadership still offers an adequate theoretical framework for the development of schools, but in its operationalization, transformational leadership is an useful approach. Gronn (1996) states in his own study that the new paradigm of leadership means also to schools

that there should be an attempt to move from transactional leadership to transformational leadership.

Leithwood (1994) brings together research directed towards the new paradigm of leadership and its application that was carried out in schools. The transformational leadership behavior of the principal has been noted to have a strong effect on the learning of the organization, especially the development of teachers. The factors of transformational leadership behavior explained as much as 80 - 90% of teachers' attitudes and conceptions that had to do with school culture. However, the leadership behavior of the principal does not explain the participation or grades of students. (Leithwood 1994, 504 - 406.)

Only one study in schools clearly supports the MLQ's eight factor assumption of the dimensions of transformational and transactional leadership. Unlike Bass's (1985) assumption, in empirical data contingent rewards relate more often to transformational than transactional leadership. Furthermore, even though transactional leadership should, according to the substitute theory, correlate significantly positive to outcomes, these connections have not been found. Management as one or more dimensions of transactional leadership behavior has not been credibly modeled.

Leithwood (1994) leans to support Bass's idea that transactional and transformational leadership are extreme opposites of each other. Building a vision and commitment to common goals have on average correlated more strongly to outcomes than intellectual stimulation and individualized consideration. (Leithwood 1994, 507 - 509.) Leithwood emphasizes that the dimension of transactional leadership functions in different organizations in so many ways that Bass's (1985) preliminary model would not work in school world (Leithwood 1994, 514).

Later Silins (1994), to whom Leithwood (1994) also refers, has continued his studies, attempting to find out whether the relationship between the dimensions of transformational and transactional leadership is correlative or orthogonal. Silins's analyses support Bass's assumptions in the sense that contingent rewarding explains both transformational and transactional leadership. Silins explains this observation so that encouragement with external rewards is related to transactional leadership, whereas intellectual rewards related to internal processes are connected to individualized consideration. (Silins 1994, 273 - 293.)

Leithwood and Steinbach (1993) consider the new paradigm of leadership not only promising, but also problematic. The researchers note that on the basis of empirical research, transformational leaders generally help their organizations achieve their quality goals. Total quality goals are not common, however, because they manifest themselves in very unique organizations and contexts. Thus also the challenges of leadership are exceptional and this line of thinking leads to the following hypotheses:

- in order to be truly efficient, a school leader has to concentrate firmly on the context of his own school and in that operating environment attempt to understand the outcomes of his leadership behavior,
- in addition to conceptual thinking, the ability to apply the means of transactional leadership when needed is also required,
- transformational leadership behavior does not guarantee the quality of conceptual thinking and vice versa. (Leithwood & Steinbach 1993, 311 - 318.)

The study of Leithwood and Steinback focused on nine school principals. Data was obtained with deep interviews and a survey to which 295 teachers from the schools of the principals in question answered. Analysis was both quantitative and qualitative. In the study only one principal was found who could be classified as a transformational leader and who mastered high level conceptual thinking.

The researchers see that transformational leadership behavior does not automatically guarantee adequate skills of conceptual thinking that are needed in many leadership tasks at high levels. Leithwood and Steinbach criticize the school of transformational leadership for paying too little attention to the mind and thinking of the leader. (Leithwood & Steinbach 1993, 333 - 334.)

This is one reason for why leadership behavior has to be analyzed in a framework that is in accordance with the new paradigm of leadership, in which the potential and behavior of the leader are separated from each other. Also when developing new training systems it should be understood how practical skills, leadership behavior and conceptual thinking relate to each other.

Jantzi and Leithwood (1996) studied the birth mechanisms of transformational leadership in school world like Yammarino and Bass (1990) did in a military organization. In their study Jantzi and Leithwood attempted to test their theory built from the starting points of

cognitivism, according to which the formation of meaning perspectives related to the leadership of teachers is influenced by the school context and the superior-subordinate (principal-teacher) interaction. According to the researchers, the construction of observations and the formation of meaning perspectives are based on direct (interactive situation) and indirect (following the activities of the leader from the outside, observing outcomes) processes. Despite his earlier criticism, Leithwood seems to be still committed to the transformational leadership. (Jantzi & Leithwood 1996, 512 - 516.)

The data of the study consisted of a sample in which 423 teachers evaluated their principals. Other data consisted of the background variable information of the teachers and principals. The data was analyzed in various correlative methods. The researchers drew some conclusions that are interesting paradigm-wise. The variables included in the study explain over 80% of the teachers' meaning perspectives related to leadership. Background variables, like the age or experience of the principal, do not explain the formation of meaning perspectives. Decisive in this interactive relationship is the leadership behavior of principals, which is not dependent on background variables. Rapid duty rotation decreases the outcomes of the principal's leadership behavior and emphasizes the part of school culture. (Jantzi & Leithwood 1996, 530 - 531.)

6.4 Research on transformational leadership in military organizations

Beginning at 1980´s, many studies as well as leadership training projects on transformational leadership have been carried out in different military organizations. Cadets in many military schools, marine helicopter squadron commanders, junior and senior naval officers, battalion commanders, NATO field grade officers and paratroop platoon commanders, among others, have been included in the samples of these research projects in USA and Israel. In most developmental training projects, the main result has been positive change in transformational leadership ratings. (Avolio, 1999.) In the following paragraphs, I will review some of these studies.

6.4.1 The U.S. Air Force

William Clover (1990) has studied transformational leadership in the U.S. Air Force, the military academies of which generally see themselves as laboratories of leadership skills. This is not a coincidence, because their duty is to produce first lieutenants who have

exemplary intellect, values and attitudes. Achieving this goal requires open and critical analysis of basic values and teaching methods.

Thousands of cadets, who have been divided into 40 basic units, study in the military academy of the U.S. Air Force. The units are regularly measured with three meters: academic, military and athletic. The composition of a unit follows the system used in troops. This way cadets get used to the organization they will serve in and its hierarchy. Each unit is led by an officer who has received basic training; they are the key individuals of this training organization: teachers, mentors, disciplinarians, etc. In each unit, younger and older cadets are integrated: the cadet education among them is strong.

In this study by Clover that focused on the cadets, the following three basic meters were used:

1. Unit atmosphere survey.
2. The MLQ (eight factor version) four transformational factors.
3. Two open questions about the positive and negative aspect of one's own leader. (Clover 1990, 171 - 173.)

The performance level of the unit consisting of cadets was evaluated using the following criteria:

1. The meter of professional competence (the level of individual knowledge).
2. Academic success.
3. Success in athletic training.
4. A combined meter.
5. Internal order, disciplinary measures, close order and cadet education.

These meters are seen relevant, because they do not require any special skills or long training: the question is about the attitude and motivation of the cadet. The study did not attempt in to influence any way the leadership activities of commanders, the arrangement was therefore non-experimental. Regular feedback and group work periods that followed at commander level were a part of the entire system. The data of the study was collected in the academic year 1987-1988, using the four transformational factors of the version 5X of the MLQ, with the exceptional scoring of 1 - 5. (Clover 1990, 174 - 175.)

In the dimensions of transformational leadership, the commanders of cadet companies received as their average 3.24 in November 1987 (s=1.10, range 2.10 - 4.63). In April

1988 the corresponding average was 3.03 (s=1.11, range 1.85 - 4.22). At the same time, the cadet units were ranked with the scale of 1 (the best) to 10 (the worst) with various meters of performance. The main question of the study was: *How does the result of transformational leadership correlate with the performance ability (ranking) of the unit?*

The research arrangement did not follow the test theory's basic idea about the comparison of extremes (the 25% rule). Instead, all platoons were included and the division into two parts was done according to rank (1-5 / 6-10). In practice, this causes problems in the achievement of significant results: the difference between platoons and leadership would be more clear with practice in accordance with the test theory. Nevertheless, a statistically very significant difference was achieved in all dimensions of transformational leadership between groups. When measured with the Mann-Whitney U-test, statistical significance was seen to have been achieved at risk level .10. (Clover 1990, 176 - 181.)

The differences between transformational and transactional leaders surface clearly in the qualitative data, i.e. open answers of the study in question. The leadership of strongly transactional leaders was seen to cause frustration, decrease of moral, selfishness, a lack of trust, inequality and disunity of the group. Transactional leaders suffer from a lack of social skills, they show a lack of empathy and they make rash decisions. (Clover 1990, 182.)

Negative observations about transactional leadership can be interpreted as emotional experiences on the role models provided by the commanders. An efficient feedback system is hoped to have an influence on those officers who have been noted to provide a bad role model. The more the organization leans on values and bases its activities on shares responsibility, the more important is transformational leadership considered to be. (Clover 1990, 183 - 184.)

In general, the impact of transformational leadership can be seen also in the level of military doctrines. In the latest U.S Air Force Doctrine of Leadership (2001), the interpersonal competencies of senior leaders are described as follows:

> *"Senior leaders foster strong interpersonal competencies in themselves and in their subordinates. Without interpersonal competence or a psycholocigally safe environment, organizations become a breeding ground for mistrust, inter-group conflict, rigidity, and non-productive activity. Senior leaders*

encourage inter-group cooperation and flexibility. In this type of environment, airmen are treated as human beings. Implicit in living these values is treating each human being in the Air force with the respect they deserve" (AF Doctrine 2001, 16, Draft copy.)

6.4.2 The U.S. Navy

In their study Bass and Yammarino (1990a) attempt to explain the birth mechanism of transformational leadership. The starting point of the study is three options to explain the phenomenon:

1) the phenomenon is based on subordinates' individual meaning perspectives;
2) the phenomenon is born out of the group's internal interactive processes and
3) the leader's leadership style in relation to the entire group is the basis of the phenomenon.

Also interesting in this study is that the researchers separate *inspiring leadership* from charismatic leadership, referring mainly to Bass's (1985) earlier research. The researchers see that charismatic and inspiring leadership are directed at the entire group, whereas intellectual stimulation and individualized consideration relate to the leader's way of leading individuals. (Yammarino & Bass 1990a, 975 - 977.) The sample of the study consisted of 186 officers of the U.S. Navy, who were evaluated by their direct subordinates (N=793).

Bass had developed the MLQ for this study so that inspirational motivation was added to the dimensions of transformational leadership. The dimensions of transactional leadership were increased to four, because contingent rewarding had been divided into two factors: the promise of rewards and the distribution of rewards. A dimension describing non-leadership, i.e. "laissez-faire" -leadership was added as the ninth dimension of leadership behavior. The outcomes of leadership were again measured with three dimensions: satisfaction, efficiency and extra effort. *Why was the number of dimensions increased*? Researches justifies the changes in dimensions by the reasons that the meter was developed primarily for the needs of a military organization and that the functioning of the meter was confirmed with factor analyses. (Yammarino & Bass 1990a, 980 - 982.)

When interpreting their results in relation to the new paradigm of leadership, Yammarino and Bass report that transformational leadership (in relation to transactional leadership) is most strongly tied to individual meaning perspectives. A clear result is that transformational leadership is more efficient than transactional leadership, which in turn in more efficient than laissez-faire -leadership. This research observation gives support to Burns's thesis on subordinates' individual needs as the basis of transformational leadership (Burns 1978, 17 - 18). As a result of this particular study, the dimensions of transformational leadership in the MLQ increased with the dimension of inspirational motivation (Bass & Stogdill 1990, 218).

The study took into account the variation caused by different leadership environments. Efficiency and result dimensions indicate whether the subordinate thinks that the leader is efficient in his activities, whether the subordinate is ready to focus on his work more than can be generally expected and if the subordinate is satisfied with his leader's leadership style from the viewpoint of achieving results. Performance evaluations related to leadership were collected from evaluations made by superiors over several years. The number of promotion proposals was counted and the results of numerical (scale 1-9) individual evaluations were compiled. (Yammarino & Bass 1990b, 158.)

The study also reports the correlations between the factors of the MLQ, which vary for the factors of transformational leadership between 0.74 - 0.90. For the factors of transactional leadership, rewarding style of leadership correlates the most to transformational leadership (0.64 - 0.80). Satisfaction and efficiency also correlate strongly to the dimensions of transformational leadership (0.73 - 0.90). On the other hand, extra effort correlates only slightly (0.10 - 0.12) to transformational factors.

On the basis of this study, the leader selection system of the Navy is seen as "relatively" functioning. Of the background variables, verbal and mathematical talent and previous academic success correlate only with success in the military academy. No background variable received a higher correlation than .12 to the factors of transformational leadership. This observation suggests that if transformational leaders are concidered to be valuable also for military organizations, the criteria of leader selection should be re-examined.

Of the variables of the military academy "performance in military tests" received correlations .06 - .18 to transformational leadership, and the researchers report this to be

statistically significant. The factors of transformational leadership correlate significantly with all career performance meters (.16 - .38). Correlations to transactional leadership are clearly lower and they are negative to laissez-faire -leadership. (Yammarino & Bass 1990b, 166.)

The evaluations of subordinates and superiors join together rather well and the best when the factors of transformational leadership were being evaluated. The researchers think that success in the military academy's military tests predicts at least charisma and the ability to inspire (correlations .18 and .14). On the other hand, the researchers report that of the meters introduced during training, success as a leader in the career of an officer is best predicted by peer evaluations and the evaluations of possible subordinates. (Yammarino & Bass 1990b, 167.)

The later study of Yammarino, Spangler and Bass (1993) is a longitudinal study, the subject of which is the group of the same 186 officers as in the previous studies of Yammarino and Bass (1990a and 1990b). The data of the longitudinal study is made up of evaluations of war colleges and measurements in normal Navy service using various performance meters. The aim of the study was primarily to test the hypothesis of modeling leadership with nine dimensions that were constructed in the previous study. LISREL -program was used to test the structure of the model. (Yammarino et al 1993, 81 - 90.)

The researchers found a *significant positive connection* between transformational leadership and the military performance of the crew over a long time span, measured at different times and with several different meters.

The result in question can be considered very important. Of the overall dimensions, transformational leadership and laissez-faire -leadership stand out from each other the most clearly in analysis. However, based on the results it seems that in a military organization it is more difficult to perceive the various dimensions of transactional leadership. Generally speaking the researchers consider it obvious that in the performance evaluations of leaders it is crucial to take into consideration the feedback of subordinates. This had not been done before at least in the U.S. Navy. (Yammarino et al 1993, 97 - 99.)

For the nine dimension model the researchers obtained a GFI .72 (599 degrees of freedom) using the LISREL -analysis. The result in its entirety cannot be considered

satisfactory, even though it includes many assumed, very significant connections. Especially the modeling of transactional leadership with four factors proved to be very problematic. (Yammarino et al 1993, 92 - 97.)

The researchers made the following conclusions concerning the further modeling of transformational leadership:

1. The new paradigm of leadership offers a better premise for the study of leadership than previous paradigms (authoritative vs. democratic leadership style, task orientation vs. human orientation, controlling vs. participatory leadership style).
2. Transformational leadership does not displace or undo other previous trends or models of the study of leadership; actually, it seems to rise above them.
3. Research already conducted offers a good starting point for the further development of the paradigm and the model that describes it. (Yammarino et al 1993, 99.)

6.4.3 The U.S. Army

From the viewpoint of renewed leadership training in the FDF, perhaps the most important single longitudinal study still going on is the research project led by Bass and Avolio with the U.S. Army Research Institute (ARI). The subject of the study is 72 platoons and their leaders of the paratroops of the U.S. Army.

The aim of the study is to find out the extent to which the transformational and traditional leadership of the unit, the platoon leader and the second-in-command can predict the potential of the entire platoon to perform their duties in a combat situation. The leadership evaluations are carried out with the six-factor military version of the MLQ (subordinate, peer, superior, self and team evaluation). The potential of the platoons is measured in war exercise conditions where combat conditions are simulated.

In the study each platoon participated in the performance of 11 different combat tasks. The performance evaluations were carried out by external expert observers (such as highly experienced senior officers) using established methods that are based on a field manual (FM 100-22). At different phases, quantitative data has been collected from soldiers participating in the study. The actual sample of the study is 24 company

commanders and assistant commanders, 72 platoon leaders, 72 platoon sergeants and 2 136 hired soldiers belonging to the other ranks as well as 125 external observers. (Bass & Avolio 1998a, 1 - 9.)

The leadership profiles of the platoon leader and the platoon sergeant were analyzed in relation to the platoon's estimated performance competence using various correlative methods. The platoons were divided into groups in two ways on the basis of the results of the different performance meters: nine best vs. nine worst and 24 best vs. 24 worst. The self-evaluations of the leaders were noted to correlate badly in relation to other sources of feedback. Subordinate evaluations deviated the most from the self-evaluations. This finding itself refers to strong need for leadership training that includes feedback meters and guidance to self-directedness.

On the basis of the average profiles of both platoon leaders and platoon sergeants it can be said that as transformational leaders the platoon leaders received slightly higher values whereas the platoon sergeants represent the more transactional type of leader. When proportioned to other studies (Den Hartog et al 1997; Basu & Green 1997; Dubinsky et al 1995; Bycio et al 1995; Kirby et al 1992), the profiles can be considered fairly good because only in the study carried out by Den Hartog et al (1997) in Holland the profiles are clearly higher in the transformational dimensions.

The absence of statistically significant results is partly a consequence of the small number of platoons. Regression analysis was used to study whether the performance level of a platoon can be predicted with leadership evaluations done with the MLQ. Several very significant results were found in the regression analysis. In this study the performance level of a platoon was best predicted by the platoon sergeant's evaluation on transformational leadership (Beta = .46***). (Bass & Avolio 1998a, 21 - 56.)

The most interesting issue is the connection between the measured leadership style and the performance level of the platoon (leader surveys done with the MLQ were carried out a month before the performance level was measured). The researchers report the leadership atmosphere of the unit, the leadership profiles of the platoon leader and the platoon sergeant in relation to the best and worst platoons. With T-tests, a statistically significant result was found only when analyzing superiors' evaluations of their platoon leaders. However, evaluations from other sources distinguish quite clearly and logically between the platoons with the best and worst performance levels, as shown in Figure 18.

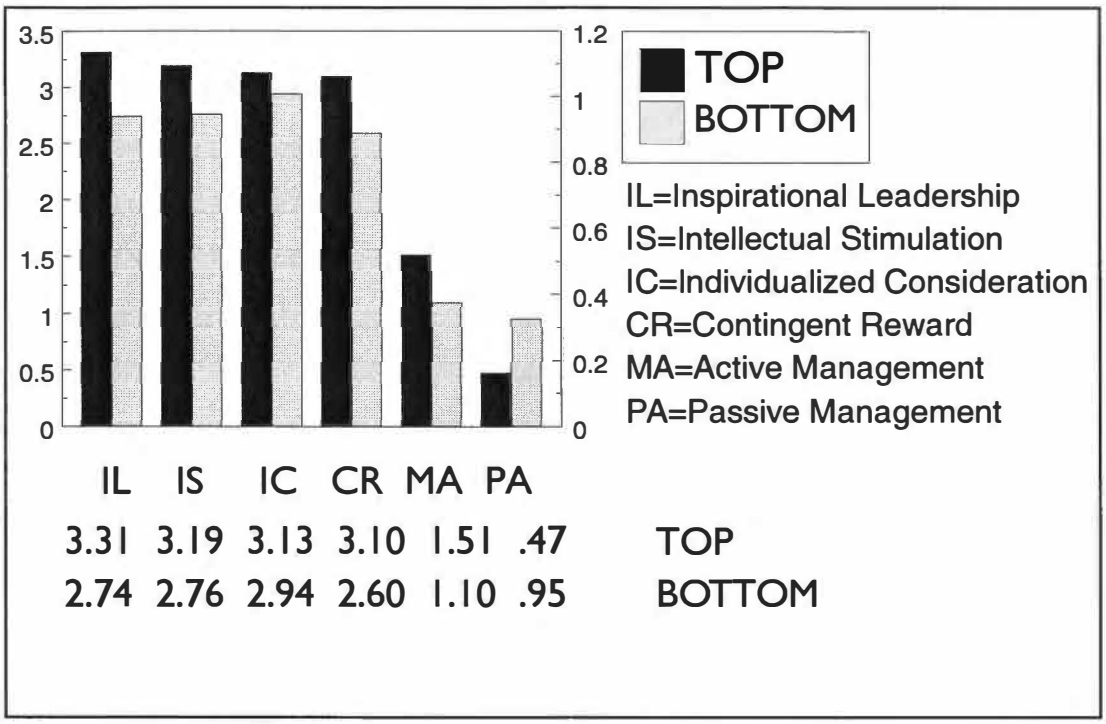


Figure 18. Platoon leader MLQ ratings from subordinates for top/bottom platoon JRTC (Joint Readiness Training Camp) effectiveness (Bass & Avolio 1998a, 47).

Snodgrass (1998) has led a project that analyzed the qualitative data of this Bass and Avolio' s study (1998a). Qualitative data on the overall performances of leaders and platoons was collected by charting the strongest and weakest qualities of the subjects being evaluated. The cooperation between the platoon leader and the platoon sergeant was evaluated separately. Conclusions from the qualitative data were drawn by comparing the platoons with the best (9) and the worst (9) performance level. Generally the most important strength is motivation and the most important weakness is the lack of experience for both the best and worst platoons.

Leadership was seen to be clearly better in the best platoons. One thing that clearly surfaced as a factor that separated the best and the worst platoons was the cooperation relationship between the platoon leader and the platoon sergeant. The functioning of this relationship is a basic requirement for the top performance of a platoon. (Snodgrass 1998, 1 - 15.)

6.5 Research on transformational leadership in Finland

In Finland, transformational leadership has been studied and applied only a little. Salonen from the University of Vaasa has written a Master's thesis on transformational leadership

in organizations (1994). In Sotilasaikakauslehti (8/1995), Häikiö was the first person to write about the application possibilities of transformational leadership in military training. In his doctoral research written in English, Beairsto (1997) refers to transformational leadership (Beairsto 1997, 18 - 29), as does Suutari (1996, 19 - 25).

Juuti (1995, 65) writes a little bit about transformational leadership. According to him, the difference between transformational leadership and charismatic leadership is not clear. Juuti uses the concepts "transformational leadership" and "charismatic leadership" when referring to the new paradigm of leadership. It can be noted that even the senior researchers in the era of leadership and management have this far largely ignored the raise of the new paradigm of leadership in Finland. Later on, Juuti (2001) critizices strongly the current mode of transformational leadership from the theoretical perspective of social constructivism. This critique will be discussed more detail in sub-chapter 7.3.

As an theoretical framework as well as a large scale operating application, the new paradigm of leadership and especially the research of the school of transformational leadership has not been utilized in Finland this far excluding the FDF. The practical application is the Deep Leadership Model (DLM) and the respective feedback tool is the Deep Leadership Questionnaire (DLQ). The DLM as well as the DLQ have been developed on the basis of the analysis reported in this research. The current versions of the DLM and the DLQ have been used throughout the military leadership training in the FDF since summer 1999.

The next sections present studies that have been carried out using different versions of the DLQ. At this point, the FDF uses DLQ version 8A99 that consists of 30 actual statements in addition to vital background information. Beside this research, the major study in the FDF this far is the comparative study by Vuorio (2001) concerning the connection between the deep leadership behaviors, quality and organizational effectiveness in the Army training companies (N=54). Vuorio used the DLQ to measure the leadership behavior of the company commanders. I will report the main results of this important study in the context of criterion-related validity in chapter 9.

6.5.1 Leadership profiles of senior lieutenants in the FDF

Tommi Kinnunen (1998) has studied the effectiveness of leadership training given in the First Degree Division of the National Defence College among young officers working as

instructors. The part of the study that deals with leadership behavior is comparative and the framework is build on the basis of the DLM. The results of the study show that leadership training has been effective.

Leadership behavior factors	cadet courses 78 - 79	cadet course 81	T-test two-way
1. Building trust and confidence	2,66	2,83	0,15
2. Inspirational motivation	2,77	3,15	0,05 (*)
3. Intellectual stimulation	2,38	2,42	0,36
4. Individualized consideration	2,99	3,29	0,09
5. Management (active)	2,36	2,53	0,15
6. Passive leadership	0,88	0,7	0,15
(*) significant difference at 5% risk level.			

Table 4. Comparison of leadership behaviors of young officers (Kinnunen 1998, 54 - 56).

The young officers of the 81. cadet course (N=51), whose syllabus of leadership skills was renewed in the fall of 1995, consequently received higher evaluations from their subordinates on deep leadership factors than those young officers (78. and 79. cadet courses, N=48) who were taught according to the old syllabus. The meter used was version 3A97 of the DLQ. Although of all the differences in Table 4 only the factor "inspirational motivation" has statistical significance, comprehensively speaking the results obtained can be considered significant. Due to the size of the sample, the scale used and the psychometrics related to it, statistically significant results are not obtained. The leadership profiles of the senior lieutenants of 78. and 79. cadet courses used for comparison are also of very high quality and this also has an effect.

The difference between the officers representing different cadet courses are consequently clear, though, and it speaks for the efficiency of leadership training also in the area of the development of leadership behavior. The cadet course 81 is actuallythe first cadet course that was instructed and trained according to the new curricula with an emphasis to deep leadership.

Avolio and Bass (1995a and 1995b) report similar results with the efficiency of a similar leadership training program based on the FRL. According to them, efficiency can further increase if in the beginning of the training program the trainee names the dimension in question as his own development target.

6.5.2 Leadership behavior and work motivation at Kesko OyJ

Kujala (2000) has studied the leadership behavior and work motivation of middle level leaders at Kesko OyJ. Kujala measures leadership behavior with the DLQ (version 8A99) that was not specifically adjusted to the needs of a civilian corporation. To measure work motivation, Kujala uses a version adapted from Ruohotie's (1990, 1995) growth need project questionnaire, in which work motivation is divided into three parts: commitment to work and work community, growth motivation and performance motivation.

The final sample of Kujala's study consisted of 57 superiors and their 303 subordinates. Of feedback sources, subordinate evaluation and superior's self-evaluation were used. It is possible to say of the average profiles that in the factors of deep leadership the superiors slightly over-evaluated their own level compared to the feedback of subordinates. The female leaders (N=19), on the other hand, received higher values on all factors of deep leadership than their male colleagues.

According to regression analysis, leadership behavior explains well the evaluated outcomes. Efficiency (explanatory variance 78%) is best explained by inspirational motivation (Beta=.571) and individualized consideration (Beta=.401). Satisfaction (explanatory variance 81%) is best explained by building of trust and confidence (Beta=.690) and individualized consideration (Beta=.337). Extra effort (explanatory variance 68%) is best explained by inspirational motivation (Beta=.407) and intellectual stimulation (Beta=.330).

When studying the connections between leadership behaviors and work motivation, Kujala divided the leaders of her sample into three groups using cluster analysis. With variance analysis, Kujala finds commitment-wise an almost significant connection that is supported by correlative examination (Yukl 1998, 7). Statistical connections to growth and performance motivation were not found. According to the previous empirical research on transformational leadership it can be estimated that only truely deep leadership behaviors can have an effect on the growth motivation of subordinates: in Kujala‘s study even the best cluster included superiors who did not reach above the level 3.0 that is considered critical in the factors of deep leadership. The comparison of extremes with T-test carried out according to the test theory might have yielded a different result for the part of growth motivation.

Kujala also evaluates the validity and reliability of the deep leadership questionnaire with the data of her own study. The DLQ worked excellently as such: it was not necessary to change one question to improve reliability. The reliability coefficient of the factors of the DLQ vary between .85 - .93, excluding controlling and corrective leadership which has a reliability coefficient .69.

6.6 Conclusions on the modeling of leadership behavior

The study of leadership has encountered a new paradigm in which the central elements are leadership behavior and the study of the outcomes of leadership. The approach emphasizes the comprehensive view of leadership as a universal phenomenon. Universalism takes place inside culture-bound conceptual systems. The conceptual premise is a human being and his internal, human processes in a certain interactive relationship in order to reshape meaning perspectives.

The approach assumes that in a culture- and organization-bound context, it is possible to find those forms of leadership behavior with which it is possible to wake up and guide people's internal processes in a lasting way and this way influence the quality and amount of external endeavors. With the help of the modeling of the paradigm, this phenomenon, that is not new as such, can be approached and measured in a culture- and context-bound way better than before. Modeling also offers new opportunities to leadership training in various organizations.

Transformational leadership (deep leadership in the FDF) attempts to interpret the phenomenon into a generally understandable conceptual form and describe it with a certain model. The work is based on extensive empirical studies and its basic assumptions have been examined and tested. The hypothesis of the three main dimensions of leadership, which are:

- transformational (deep leadership),
- transactional (controlling and corrective leadership),
- laissez-faire -leadership (passive leadership),

has received strong empirical support in almost all studies. It does, however, seem that within these basic dimensions culture- and organization-oriented variation requires the study of factor structures and the confirmation of the validity of the structures.

Researchers' interest has been particularly roused by a question of the relationship between the main dimensions of leadership: *are they each other's extremes, is the relationship orthogonal or correlative, does Bass's (1985) augmentation relationship work or not?* The question is about a multi-dimensional phenomenon that can be answered only when the viewpoint from which the problem is approached is clearly defined.

If consideration is given only to how the leader behaves without taking situational factors into consideration, it is natural to end up supporting the view of Bass (1985) and Donohue & Wong (1994) that each leader uses both transformational and transactional leadership behavior. Then the augmentation relationship works.

If there is deeper pondering on how the leader acts in various situations on the basis of his own personality, the answer may be different. A truely transformational leader can act transformationally in problematic situations when another leader is already using the behaviors of transactional leadership. Correcting mistakes and punishing for them are good examples of this. In this viewpoint situational factors become decisive, because in reality transformational leadership is limited only by those situations in which the leader does not have real preconditions for goal-oriented interaction with his subordinates.

Because transformational leadership is based on the fairly lasting elements of the personality of an individual leader (values, conception of human beings, self-esteem, balance of his emotional life, etc.), it is conceptually misleading to speak of "styles". I prefer to speak of leadership behavior, the quality of which is determined primarily by the leader's overall personality.

The basic question of the modeling of the transformational factors by Bass has become whether to divide the charismatic dimension into two parts, in which case one factor is inspirational motivation. Intellectual stimulation and individualized consideration have in different studies surfaced consequently as their own factors. Right now the starting point is the solutions of four transformational factors. (Bass 1998a, 5 - 6.)

There are some conflicting research results on the dimensions of transactional leadership (Bass 1997, 136). The most general conflicting observations have to do with:

1. Contingent rewarding loads closer to the transformational than the transactional dimension.

2. Passive management-by-exception loads closer to "laissez-faire" -leadership than transactional leadership.

When it comes to transactional leadership, in the formation of concept and theory it should be clearly decided whether the dimension is approached from the viewpoint of the question *what*? or *how*?. I approach transactional leadership from the viewpoint of the question *how*? in the context of a military organization. As a factor analysis shows (Avolio, Bass & Jung 1998, 37), the two fundamental main dimensions of leadership are active vs. passive. On this basis it is natural to combine the sub-dimension of passive leadership to "laissez-faire" -leadership or vice versa.

Contingent rewarding at the other end of transactional leadership is also divided into two: the use of internal and external rewards. As Bass has stated (Silins 1994, 292 - 293), internal rewards are a part of transformational leadership behavior. The use of adequately encouraging external rewards, on the other hand, is a problem in military organizations already in peace time, let alone in war time conditions at the level of a combat leader.With a data of 700 NATO field grade officers, it has been found that contingent reward was less effective and management by expection more effective than usually obtained with civilian samples (Bass 1997, 135). The means of rewarding of low level military leaders are quite few and poor. Therefore from the viewpoint of the question *how*? contingent rewarding as an independent dimension disappears in my approach, and transactional leadership can be assumed to contract into one dimension in a military organization (controlling and corrective leadership).

When it comes to the outcomes of leadership, empirical research results confirm the hypothesis of strong causal path in between leadership behaviors and organizational effectiveness . Transformational leadership correlates strongly to efficiency, satisfaction and extra effort. Transactional leadership correlates somewhat to these outcomes and laissez-faire -leadership usually negatively. The results are similar even when using external, independent performance evaluation meters (Bass & Avolio 1998a, 45 - 56).

If the outcome criteria is switched from a directly observable to an indirect one, it is more difficult to find clear positive correlations. It is possible to explain this observation as having been caused by context-bound intervening factors, and the principle of causal chain that is applicable for the basis of analysis has already been introduced earlier in this research (Yukl 1998, 7). For example principals can significantly influence teachers'

meaning perspectives, but a connection to students' academic success can no longer be found (Bass 1997, 135).

Contents-wise the new paradigm of leadership does not bring any real new information to the study of leadership, rather vice versa: the paradigm strengthens and "cleanses" those cornerstones of leadership that leadership with excellent results has always been based on. Elevating leadership behavior to the starting point of modeling and learning for leadership is new, however. The new paradigm of leadership is not a scientific theory, but it has been proved to produce satisfactory, even excellent learning results in leadership training. I believe that development as a leader is always possible, and for this view the new paradigm of leadership offers opportunities never used before.

7. THE DEEP LEADERSHIP MODEL (DLM)

The core of the contents information of the new leadership training program in the FDF is the Deep Leadership Model (DLM). The Deep Leadership Questionnaire (DLQ), which is designed to be a feedback tool that measures desirable behavior, is straighly based to the DLM and its structure. The DLQ is also the most important tool in the collection of information that can be used to test statistically the hypothetical structure of the model.

In connection to the DLM, the frameworks, that the model is "fitted" in the leadership training program, have to be presented. The constructivist framework for leadership behavior (see Figure 5) ties the concept of leadership behavior to a wider individual viewpoint and critical constructivist approach, giving a structure to the deep leadership model. As a basic element of my metascientifiv approach, this framework has already been introduced in the chapter 2. Beyond this individual point of view, the general framework of leadership (see Figure 19) gives a foundation to perceiving the entity of military command and to understanding the complex interaction between the respective sub-concepts (see Figure 13).

The DLM is a tool that has been developed to the Finnish cultural environment and especially to the FDF. It leans on the basic assumptions of the new paradigm of leadership and the empirical research that has been done to model the paradigm. The DLM has been designed to meet the needs to enhance the leadership training of the Finnish Defence Forces. The four cornerstones of deep leadership include information about excellent leadership behavior and, as I do believe, this information does not change in time. The DLM contains information that should be deepened in training and applied to the needs of different branches and services. As an main tool of leadership training, the DLM is not detailed enough in its wide area of application. In behavioral sciences, the model can be defined as follows:

> *"Models are well-developed descriptive analogies used to help visualize, often in a simplified or imitative way, phenomena that cannot be easily or directly observed. Each model is thus a projection of a possible system of relationships among phenomena, realized in verbal, material, or symbolic terms."* (Anderson & Burns 1989, 30.)

Models are more practical than true. Models are also able to stand more empirical testing than theories, excluding models that are tested with structural equation models. The DLM is included in the latter group and the stability of its structure will be tested in an empirical study that will be reported in the third part of this reserarch.

With its framework, the model offers great opportunities for the leadership training program, when the nature of the model and the related questionnaire as tools and directors of individual thought are understood and internalized. Leadership training attempts to narrow the gap between theory and practice by applying the model to basic training as well as the feedback on leadership behavior that takes place in service. An individual leadership profile and other feedback are seen to offer a practical interpretation of the principles of deep leadership to leader trainees.

The main objectives of the use of the DLM in describing the contents information of the leadership training program are to:

1. Form a framework to the concept of leadership behavior that supports the interpretation of the experiences of trainees and the formation of new perspectives of meaning.
2. Support the understanding and application of information produced by the research of leadership in a way that serves training and learning.
3. Give to leader trainees a comprehensive foundation for the development of their leadership behavior with feedback in life-long time span.

Why the term *deep leadership* model? The phenomenon behind the new paradigm of leadership, here called excellent leadership behavior, is based on the fundamental opportunities of leadership and the fountainhead of its power. Real leadership stems from the level of the internal human needs of the leader as well as his followers: values, needs, desires and motivation. It has been noted that a leader can bring about changes in his subordinates' perspectives of meaning. On the other hand, the development of leadership behavior requires an increase of self-knowledge and continuous directing of one's own attributes. All these processes penetrate human beings beneath the surface.

Burns (1978), Bennis and Nanus (1985), Zorn (1992), Wofford & Goodwin (1994) as well as Jantzi and Leithwood (1996), among others, deal with the deep process of development as a leader. Bass (1998a) presents empirical research done within the framework of the new paradigm that is related to development as a leader, stating that:

> *"Training and education in transformational leadership must promote self-understanding, awareness, and appreciation of the range of potential leadership behaviors used by both effective transformational and transactional leaders. It must go beyond skill training. It must be internalized and point to the extent that the best of leaders are both transformational and transactional but they are more likely to be more transformational and less transactional than poorer leaders."* (Bass 1998a, 99.)

In the area of behavioral sciences, especially in pedagogy and in the conceptual field of the constructive conception of learning can be found the established term *deep learning* that is the antonym of surface learning. The concepts of deep learning and surface learning have been developed by Ference Marton. In the process of surface learning the learner concentrates mainly on information as such, not on its significance or contents. In the process of deep learning the learner concentrates on the significance and goal of information, attempting to understand its fundamental purpose and its connection to his own experiences and previous knowledge. Weighing the reasons for preconceived ideas is also related to this process.

Deep learning therefore has to do with the reformulation of individual perspectives of meaning at least on a mental level. Eteläpelto (1994), Rauste-von Wright and von Wright (1994), Kuusinen (1995) and Ruohotie (1995), among others, write about the concept of deep learning. Ruohotie deals with deep learning in connection with learning strategies, concluding that deep learning is connected to inner motivation.

How does deep learning manifest itself in the knowledge and skills of an individual? Toiskallio (1998) claims that deep learning shows when the learner understands the entity related to information, he is able to use this information in a new problem situation, is able to make choices and function effectively in new and surprising conditions. Deep learning also includes the development of one's own conceptions, appreciations and activities and their critical assessment. Deep leadership is based on the same human mechanisms as deep learning in the context of individual development. Toiskallio's definition mentioned above, for example, can be transferred to military leadership training as such, only the word 'learner' is substituted with 'subordinate'.

Deep leadership is a term of behavioral science. Deep leadership is based on the opportunities of a leader to influence the perspectives of meaning of himself and his subordinates (Burns, 1978), referring also to the basic dimensions of emotional intelligence (Goleman, 1995). The cornerstones of deep leadership include lasting and essential information of those forms of leadership behavior with which this kind of influencing is possible (Bass, 1998a). The DLM also includes other forms of leadership behavior that have been distinguished through research - controlling/corrective leadership and passive leadership - and that have their own mechanisms of influence.

7.1 The general framework of leadership

Conceptually leadership behavior is connected to a wider entity of leadership and military command with the help of the general framework of leadership. The framework gives justifications for the analysis of the contents of the concepts and the relationships between them, describing the entity of leadership from the level of an individual leader. Drawing an exact and unambiguous line between the areas in Figure 19 is, of course, impossible. The relationships between the concepts are not clear in current research literature. The nature of the framework is cumulative and multidimensional. Differences that increase understanding are found between the stages when analyzing the temporal dimension and stability of a leader's activities.

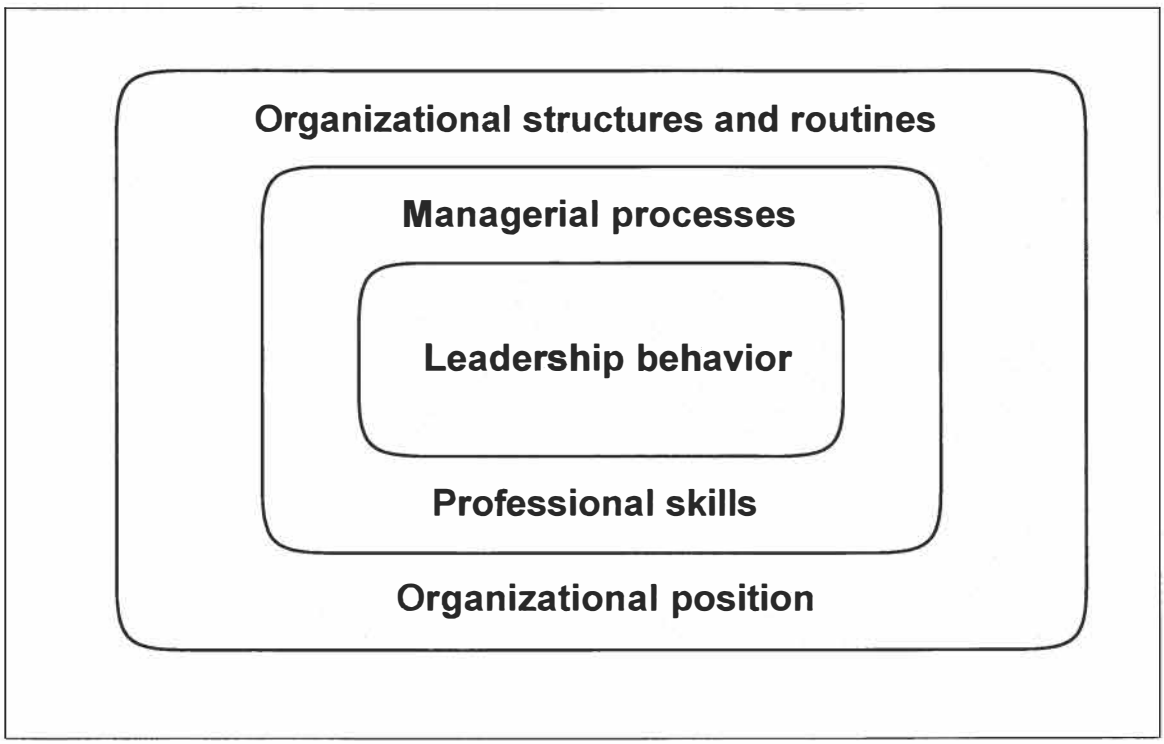


Figure 19. The general framework of leadership.

The new paradigm of leadership leans on research and assumes that in successful organizations leaders master the entity of the framework. It is the leader's responsibility that structures and routines function. Decision-making has to be supported by smooth processes and efficient handling of information. It is essential that successful leaders attempt to use most of their resources within the core of the framework, not on its outer perimeter, meaning excellent leadership behavior. Characteristic to the successful leaders and their organizations in this sense is productivity, efficiency and situational sensitivity. Jorma Ollila, CEO of the fairly successful Nokia summarizes this idea as follows:

> "...*trust is a too little-known concept that has been used too little in leadership, usually the talk is only about productivity and result. Trust at Nokia is the organization's internal code that is not based on a written contract or hierarchical position and that cannot be created with an order from the top. It is the organization's internal understanding that an individual who has much freedom and responsibility can be trusted. And when everyone knows that help is available, when needed, internal comfort is created*." (Talouselämä 18/2000.)

The general framework of leadership has been found quite useful when studying the tasks, position and activities of a single leader in a military organization. With the framework it is possible to analyze the relationship between the entity of leadership and its various areas in changing operating environments. I have already analyzed the main parts of the general framework of leadership in the chapter 4. Still, some basic observations about organizational structure, routines, culture and values need to be made.

7.1.1 Organizational structure and routines

The structure and routines of an organization are based on the fundamental purpose of the organization's existence. The goals and objectives of activities are built on this basis. Activities are divided into different areas, they are phased and prioritized. The guidelines and limitations are defined by creating the organization's strategy of action. Overall resources are allocated and budgeted. The structure of the organization is defined and carried out so that the fluency of basic functions is ensured by defining and giving directions concerning the procedures to be standardized. A system of communications and contacts is built inside the organization. An appropriate personnel structure is defined within the basic structure of the organization, and at the same time the most important

procedures are defined. Quality requirements are drawn up for the personnel and directions are given concerning the hiring and placement of personnel. (Bass & Stogdill 1990, 387.)

The management of change and the concept of paradox relating to it were briefly dealt with earlier. Kouzes and Posner (1995) see the routines of an organization as the premise of the paradox. Routines have an inevitable effect on the increase of bureaucratic procedures in organizations and they are a clear obstacle to change and development. On the other hand, to a certain extent routines are necessary so that things would happen effectively and anticipation would be possible. The continuous changing of routines paralyzes the organization. Routines must therefore exist, and routines that support the key goals of the organization must be valued while getting rid of unnecessary and unproductive routines.

Unproductive routines must be bravely eliminated. Routines that support development, like feedback systems and quality assessments, must be given the importance they deserve. Those routines that belong to the category "this is how it's always been done" have to be revalued from time to time. Efficient leadership thus includes the ability to evaluate the necessity and meaningfulness of values and the drive to change them if necessary through transformational leadership.

7.1.2 Organizational culture

Schein (1992) defines organizational culture as a group of common assumptions and beliefs of the world, time, space, human nature and relationships between people. Schein separates from each other subconscious basic assumptions and conscious values that can either support each other or be in conflict. In the framework of the concept of military command, organizational culture is considered because of its stability to be a part of the foundation of an organization, a basic structure of its social system. Organizational culture remains constantly in the background, affecting even the activities and behaviors of individual leaders. Organizational culture draws its strength from basic assumptions and values related to the organization (Long 1993, 61 - 70).

If there is a conflict between the basic assumptions and spoken values in an organization, it causes problems to leadership and the activities of the organization. The conflict can be visible to the outside for example in that even though there is unanimity concerning the

main task of the organization, there are notable problems when it comes to dividing the main task into lesser tasks and prioritizing them (Yukl 1998, 329).

Leadership culture is an important part of organizational culture. The conception of human beings cherished by leadership culture can be considered the basic assumption of an organization because it is often subconscious in nature. The conception of human beings nevertheless directs the leadership behavior of an individual leader. Because of this, an organizational leadership training program must have a clear and justified conception of human beings (Ruohotie 1995, 110 - 117). There is reason to review the structure of an organization from time to time. A new vision, strategies and aims often require the review of technical and administrative systems. Organizational culture should not be forgotten, either:

> *"The bottom line for leaders is that if they do not become conscious of the cultures in which they are embedded, those cultures will manage them. Cultural understanding is desirable for all of us, but it is essential to leaders if they are to lead."* (Schein 1992, 15.)

In general, leadership culture must be carefully studied: where is information obtained from, who is listened to, who participates in the decision-making process, how are rewards and benefits distributed? These questions must be answered in a justifiably systematic way because they are extremely close to people. Values must be clarified, and there must be courage to focus on the basic assumptions that prevail behind the values. It should, however, be remembered to separate from each other the harmful conflict of values and constructive, open handling of differing opinions in connection with issues that matter. (Tichy & Devanna 1986, 48 - 53.) In the military, the command climate is a sub-concept of leadership culture. According to Ulmer (1999), leadership culture is a deep value set that is difficult to modify in the short term. Climate, on the other hand, may be changed rather quickly.

7.1.3 Organizational values

One of the most important concepts in recent management literature is that of value. "Management by values" is associated particularly with the change in organizations. As well as managing individuals, teams and organizations, it is also necessary to manage values and cultures. The greater the demands for freedom and autonomy by the modern,

well-trained personel (open operating environment), the more important it is to manage by values and visions instead of instruction and control. Today, culture serves as metaphor of organization, which is maintained by values, beliefs, assumptions, norms, practices, rituals, and artifacts. Value or cultural change always requires some sort of shared learning and experience, including fornmal training and education as well as everyday life with its routines, practices and decisions. (Lahti-Kotilainen 1992, 3 - 4.)

The leader who commands compelling causes has an extraordinary potential influence over followers. Followers armed by moral inspiration, mobilized and purposeful, become zealots and leaders in their own right. How do values come to hold such power over certain leaders? How deep are the roots of values held strongly by the leaders and the led? To answer these questions, it is necessary to consider the more general goals and values that influence members of organizations - especially public organizations and especially at the middle-to-higher administrative levels.

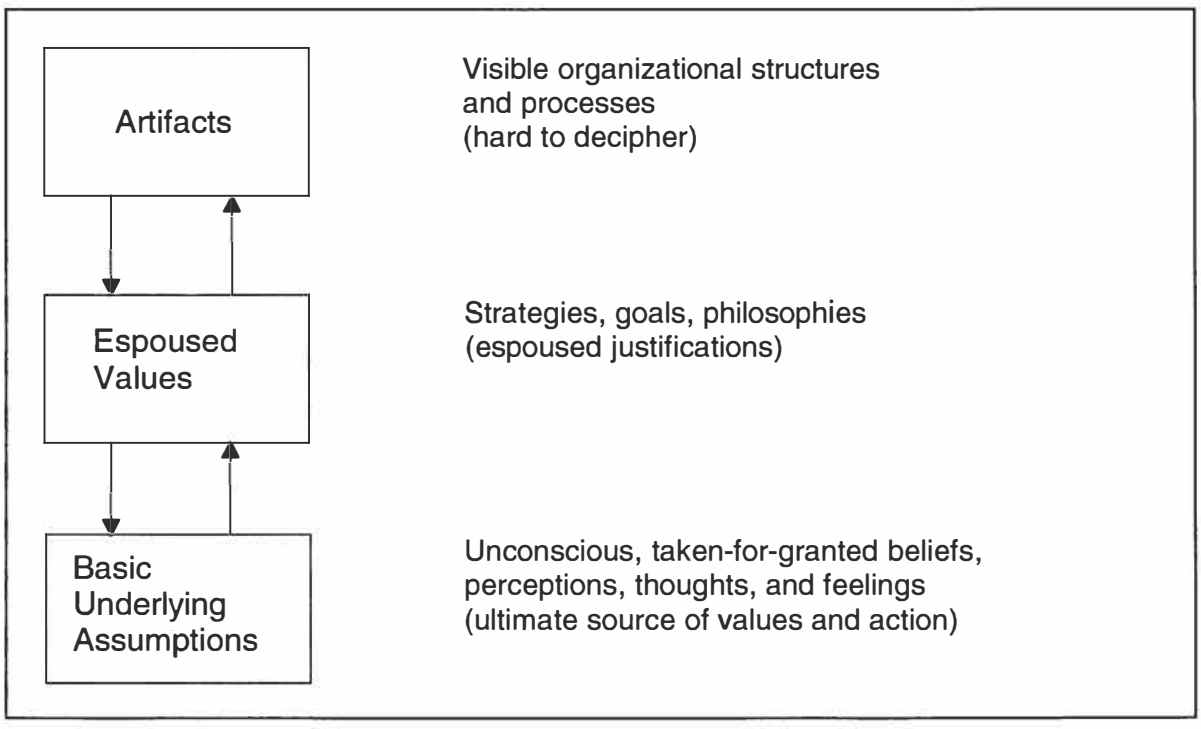


Figure 20. Levels of culture (Schein 1992, 17).

The concept of goal is dispensable to the theory and practice of leadership. Goals may represent end-values such as peace, individualism, or equality, or they may be instrumental to such goals. After all, most organizations lack central, unifying goals. (Burns 1978, 375 - 377.) When uncovering the levels of organizational culture, Schein (1992, 15 - 18) analyzes culture at three different levels, where the term level refers to the degree to which the cultural phenomenon is visible to the observer, as shown in Figure 20. All group

learning ultimately reflects someone´s original values, someone´s sense of what ought to be as distinct from what is.

If the military leader convinces the group to act on his/her belief and if the solution works and if the group has a shared perception of that success, then the perceived value that advertising is "good" gradually starts a process of *cognitive transformation*. First, it will be transformed into a *shared value or belief* and, ultimately, into a *shared assumption*, if action based on it continues to be successful. If this transformation process occurs - and it will occur only if the proposed solution continues to work, thus implying that it is in some large sense "correct" and must reflect an accurate picture of reality - group members will tend to forget that originally they were not sure and that the proposed course of action was at an earlier time debated and confonted. (Schein 1992, 16 - 20.)

The previous description of an value-based, collective transformation process is an exact picture of the current change in the FDF. The new leadership training program is an artifact, through which we wish to be able to penetrate in to our organization and military leadership culture as deep as possible, even to the level of shared assumptions. *Are we going to succeed?* The contemporary opinion in the society and the feedback that internal evaluation system provides are fully supporting the manifested change.

Griseri (1998) has an critical and also sceptical view on managing values. Because managing in an organization is a highly time-critical activity, for practical purposes the idea of managing values is not feasible. According to Griseri, the most effective managerial strategy is to accept this practical limit to understanding values and treat is as a positive feature rather than as an absence of control. Values as a basis of behavior is a difficult approach, because the same behavior may have entirely different roots. Unfortunately much management theory has had the destructive effect of replacing the complexity of real life with the oversimplicity of models.

Griseri emphasizes, that understanding the values of members of an organization is intrinsically a two-way process - a dialoque as much as an observation. Due to this starting point

- the process of understanding people´s values is no simple affair,
- it can provide a basis for developing an underpinning critique of methods of training and evaluation in this area and

- the value analysis implies that a new kind of approach to management development is necessary. (Griseri 1998, 13 - 14.)

It has to be noticed that both Bass (1985; 1998a) as well as Kouzes and Posner (1995) see the concept of management as a synonym of transactional leadership. From this point of view the critical approach by Griseri is more than relevant, because the new paradigm of leadership manifests that a proposal change in the level of human values is possible only through transformational leadership, not transactional. This is also what Burns (1978) means when writing about values, conflict and personal growth.

The conception of human beings cherished by leadership culture can be considered an asset to an organization, and it strongly directs the leadership behavior of individual leaders. In the leadership training program, this foundation must have a clear and justified conception of human beings as its premise.

There is reason to review the structure of an organization from time to time. A new goal, strategy and objectives often require the review of technical and administrative systems. In this context organizational culture should not be forgotten, either. Leadership culture must be carefully studied; where is information obtained, who is listened to, who participates in the decision-making process, how is the division of rewards and benefits carried out? Answers that are justifiably systematic have to be found to these questions, because they are very close to people. Values have to be clarified. However, a harmful value conflict must be separated from the developing and open handling of differing opinions concerning serious issues (Tichy & Devanna, 1986).

7.2 The Deep Leadership Model (DLM)

The Deep Leadersip Model (DLM) is the foundation of the contents information of the leadership training program. The model consists of the constructivist framework of leadership behavior. The concrete developmental tool based on the model is the Deep Leadership Questionnaire (DLQ) with the help of which feedback information is collected for individual leaders. This viewpoint restricts the structure of the model: the model only includes those dimensions that can be evaluated in a reliable manner with external feedback. The model includes only one dimension from the foundation of behavior, i.e. the potential of the leader, and that is the professional skills.

From all possible outcomes the model includes three dimensions: efficiency, satisfaction and extra effort. The respective outcomes are being used in the research on transformational leadership (MLQ) and therefore these outcomes offer a possibility to do some comparative and cross-cultural research. The information obtained from these dimensions has a reflective nature for a leader who evaluates the roots and effects of his own leadership behavior in his operating environment. For example, in a military organization, possible and measurable outcomes would be:

- group cohesion,
- mutual trust,
- confidence to the possibilities of success in the battle,
- moral and ethical aspects.

One task for the further research is to find out whether this kind of outcomes could be unified in the DLM, or is it more reasonable to measure them with separate meters. The structure of the DLM with three main dimensions and 10 factors is shown in Figure 21.

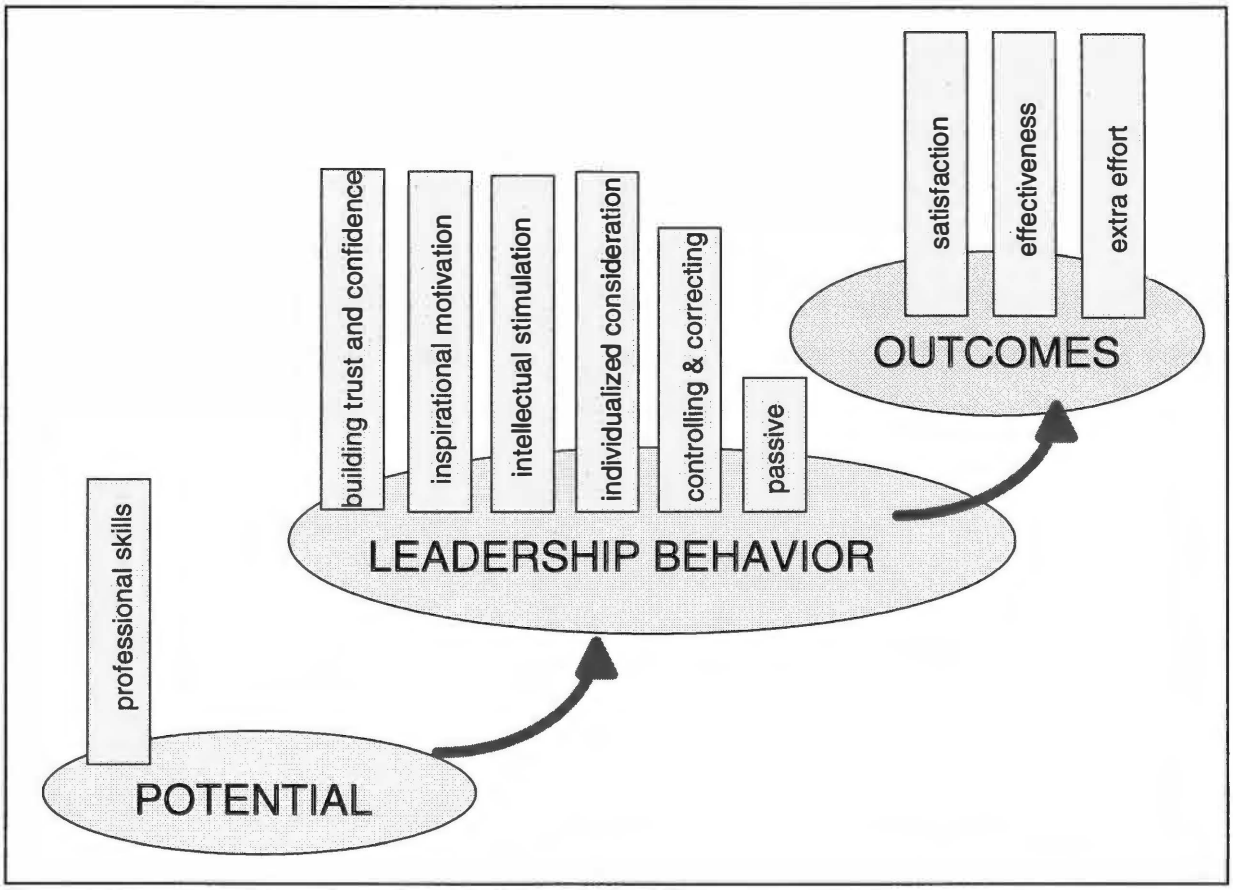


Figure 21. The Deep Leadership Model (DLM).

Leadership behavior is modeled with three dimensions, which are deep leadership (DL), controlling/corrective leadership (CL) and passive leadership (PL). The main dimension of

deep leadership (DL) behaviors is divided into four factors (cornerstones), which are building trust and confidence (BT), inspirational motivation (IM), intellectual stimulation (IS) and individualized consideration (IC). The whole model and the related questionnaire are made up of 10 factors, the main contents of which are summarized in the following paragraphs.

(1). Professional skills (PO) mean the knowledge and practical skills needed by a leader in his current assignment. The evaluator's view of the leader's potential on a general level builds a foundation for evaluation. Professional skills are thus only a part of the potential of a leader. Because the feedback system is mainly based on evaluation coming from the outside, it is not sensible to try to define, say, the values of the leader through feedback. The receiver of the feedback, i.e. the leader, must in his own development process become aware of the demands presented by the feedback on the reviewing of his values and attitudes (Malmivuori 2001, 139 - 149).

The professional skill of a leader is efficiency-wise an important but relative concept. Professional skills are a basic requirement of excellent leadership behavior, but alone they do not guarantee the efficiency of leadership, i.e. the effects being pursued. Furthermore, the contents of the concept of professional skill change as the level of leadership rises. When it comes to the end result, in most organizations and situations the behavior of the leader is what becomes decisive. The justification of this claim is apparent in the empirical study relating to transformational leadership that has been reported by Bass (1998), among others.

In everyday language, professional skills mean mastering the issues that occur in the sector of intellectual and practical skills. The significance of professional skills in leadership varies radically according to the level of leadership and the operating environment. A military organization offers a good framework for examining this issue. In everyday language professional skills mean mainly the area of practical skills and information. Of course, the meaning of this term would be different if the contents and meaning of the term of professional skills were expanded so that they would cover leadership behavior as well.

At the lower levels of leadership and in the beginning of a military career the professional skills of a leader has the greatest effect on practical activities. Professional skills culminate in the premise that a military leader is also the instructor of his subordinates. It is

impossible to train the use of weaponry or methods of activity without sufficient professional skills. When the physical requirements of a military leader are added to this examination, the traditional "champion of his troops" -feature is approached. To a young military leader professional skills and physical performance provide also a foundation to which the healthy and strong self-confidence required by deep leadership can be anchored.

At the middle levels of leadership the significance of the professional skills of a leader begins to change. The leader obtains more and more results through his subordinates and with their help. The leader can no longer control all details. Alongside the personal practical skills surfaces the ability to make use of the current potential of subordinates and develop the subordinates as well.

At the top level of leadership the significance of professional skills change permanently. As an example, a high-ranking superior can demonstrate that he masters a detail, but is not possible more extensively. At the top levels of an organization, the professional skills of leaders are based more and more on the attributes of conceptual thinking without forgetting the leadership aspect. The understanding and control of entities and processes (strategic thinking capabilities) culminates in the building of visions and passing them on to the organization, anticipatory management and the efficient use of resources. The dimension of training and coaching subordinates and one’s own example are emphasized throughout the whole organization.

Leadership is at its most demanding point when moving in the area between different levels. The demands directed at a young military leader, for example, are especially high: the significance of professional skills that extend to details is great, but at the same time the trainer should already master the coaching of the conscript leaders under him into responsible leaders of his troops. This is a lasting challenge of the basic training of military leaders and it presents notable qualitative challenges to the training system as a whole.

(2). Building trust and confidence (BT) is the first of the cornerstones of deep leadership. A deep leader offers a behavioral model to his subordinates. This kind of leaders are respected and even admired, thus this is not a personal goal for this kind of a leader. Subordinates often identify themselves with their leader. Trust is built especially by the fact that the deep leader can, if needed, put the needs of their subordinates above his own needs. Risks are considered shared. The ethical and moral foundation for leadership

is strong, because the basic attributes of honesty, fairness and impartiality come first in the behavior of a deep leader. The deep leader rarely uses his legitimate power and never to seek his own advantage.

(3). Inspirational motivation (IM) becomes evident when a deep leader gets his subordinates to find from their work new meaning, new features and challenges. The unity of the group increases with shared goals and experiences. Trust in the future and optimism strengthen the ability to function. Subordinates are included when goals are being visioned. Deep leaders can clearly gather the demands set for everyone's tasks and they create commitment through shared goals. Clear rules are set for the group and everybody follows them. Goals are set high, and with his own example the deep leader encourages his subordinates even to exceed their normal performance level to achieve the goals. The deep leader distributes praise when an opportunity presents itself and develops new, surprising ways to reward his subordinates for good performance.

(4). Intellectual stimulation (IS) is manifested when the deep leader supports the innovativeness and creativity of his subordinates by questioning the basic assumptions, seeking new possible solutions to problems and new approaches to work. Creativity is encouraged. An individual is not punished for his mistakes by lowering his self-confidence, but mistakes are seen as a natural part of the activities of a developing organization and the aim is to learn from them. Subordinates are asked to contribute their ideas and they are included in problem-solving processes. Subordinates are allowed to try out new solutions and they are not expected to always agree with the leader. The skillful use of feedback is emphasized in leadership behavior: the deep leader can give and receive feedback, both positive and negative.

(5). Individualized consideration (IC) is based on a positive conception of people in general and genuine interest in subordinates as human beings. The deep leader recognizes everyone's individual needs to grow and develop and he acts as a coach of some sort. It is evident in the behavior of the deep leader that he accepts individual differences among persons and he acts accordingly. The deep leader spends a great deal of time with his subordinates. Interaction is individual - the deep leader remembers earlier conversations, knows his subordinates personally and treats them as individuals, not solely as representatives of his interest group. The deep leader is able to listen. Listening is more than mechanical process of hearing: it involves interpreting, appreciating, evaluating and responding (Raiola,1995). Subordinates are supported in work-related

issues as well as in other problem situations. Subordinates are taken care of in all situations.

(6). Controlling and corrective leadership (CL) is the dimension of transactional leadership in the model. Control becomes evident especially in training procedures. These kinds of leaders do not have sufficient trust in their subordinates. The lack of trust shows as control, experienced by the subordinates to be too tight. The leader tries to do all the important things himself and believes that subordinates do their job well only when they are being controlled. In his activities the leader concentrates mainly on seeking out mistakes and performances that are not strictly according to the norm and giving out punishments for them. If control is excessively emphasized in leadership behavior, subordinates become passive, extra effort is reduced and initiative disappears, because there is no courage to try out new things. Efficiency is ostensible.

(7). Passive leadership (PL) is in practice non-leadership. This type of a leader mainly keeps to himself. He becomes involved only when he has to: a mistake has already been made and the powers of the subordinates are not enough to solve the situation. The leader assumes that the structure and routines of the organization give an adequate foundation for the performance of duties. At its worst, passive leadership is the complete opposite of leadership: the leader does not like to take a stand on anything, he is in no contact with people or not even available; instead, he avoids responsibility and runs away from problem situations. Decision-making is difficult and late.

(8). Effectiveness (EF) is the efficiency of the entire organization on which the deep leader has an effect. Set goals are achieved and even exceeded. In addition to deep leadership, the group is characterized by fluent and constructive cooperation. Activity has exceptional quality that is evident in all doings and in individuals' attitudes to try to develop. This kind of efficiency creates in the organization an air of success that can also be seen from the outside.

(9). Satisfaction (SA) is extensive, related to the efficiency and success of the organization, but also to the leader. Subordinates are satisfied because they are working for their leader in particular. Leadership behavior of the deep leader is seen as the thing that makes success possible, even though subordinates feel that they created the issues that breed satisfaction.

(10). Extra effort (EE) grows under the deep leader. Subordinates' commitment to the work community, to the leader and to the goals of the activity creates a phenomenon in which people voluntarily increase their work contribution. The deep leader uses the achieved success when encouraging his subordinates to even better performance.

The book Sotilasjohtaja II (1990) presents that the style of leadership of a battalion commander should be a mixture of both bureaucratic and creatively inspiring leadership. The *bureaucratic characteristics* of a commander's style of leadership might be:

- honoring norms,
- prioritizing a sense of responsibility and the fulfillment of duties,
- the efficient control and directing of the organization,
- maintaining the clarity of internal relationships of leadership, and
- strong sense of equality and impartiality.

In the concepts of the new leadership training program the points mentioned above are features of transactional leadership and some leader attributes worth preserving. Furthermore, a leader may demonstrate creativity by:

- using his professional skills to flexibly change activities to suit the situation,
- listening to his subordinates and keeping all channels of communication open by accepting ideas about activities,
- finding from the surroundings stimuli that serve his leadership and turning them into practical leadership solutions, and
- learning from different situations and being able to make good use of what he has learned. (Sotilasjohtaja II 1990, 73.)

When the above-mentioned "creativity" features are compared with the four cornerstones of deep leadership model, it can be noticed that there are no significant differences. All in all, the "bureaucratic" features are related mainly to controlling and corrective leadership with some aspects of trustworth leader attributes. These attributes reflect the constant demands towards the third sub-concept of military command (position) as a human face of the whole military orgaization. The features that demonstrate "creativity" are related to the cornerstones of deep leadership.

When the form of the Finnish soldier's oath is compared with the deep leadership model and especially the contents of the cornerstones of deep leadership, a significant similarity is again noticed. On these grounds already I can state that the cornerstones of deep

leadership do not as such contain any significant new information, not even for a military organization. On the contrary, the traditions of the FDF, Finnish war experiences and the contemporary research can be seen to support the core information of the deep leadership model at all levels of leadership. Thus, both deep leadership as well as controlling and correcting leadership are needed.

7.3 Application and critique of the DLM

In the leadership behavior of each leader there are aspects of deep leadership, controlling and corrective eadership as well as passive leadership. The question is, in what relationship do these aspects appear and how strong are they. The most efficient leaders seem to use the aspects of deep leadership the most, depending on operating environment.

The relationship between deep leadership and controlling leadership has special significance in a peace time military organization, because personnel that trains troops for their war time duties must in some way correct the mistakes in the performances of both individuals and troops. The entire leadership behavior may then culminate in the way that mistakes are corrected. Because also the modern theater of war requires that soldiers who are capable of independent and initiative activity be trained, the correction of mistakes should mainly take place with the means of intellectual stimulation. This way the trainees themselves can be taught to assess their own performance, which is the premise of efficient learning and the application of what has been learned.

The operating environment has an influence on the relationship between the dimensions of deep leadership. Empirical analyses of deep leadership show that interaction is divided mainly into two dimensions: influencing the group and influencing the individual. Building trust and confidence and inspirational motivation are primarily related to influencing at group level. Intellectual stimulation and individual consideration have mainly to do with influencing the individual.

In particularly critical situations the mutual position of the cornerstones changes. In the war time battle environment and in the peace time management of a drastic structural change the cornerstones pair up so that the foundation of leadership is formed on building trust and confidence and individual consideration. A theoretical justification for this conclusion is that in a crisis people regress in the hierarchy of needs and the needs for

security, for example, become very important to an individual. Of the cornerstones of deep leadership, building trust and confidence and individual consideration in particular produce the most security.

When new solutions are needed, creativity and innovativeness can be brought to the surface with the help of inspirational motivation and intellectual stimulation. These dimensions of deep leadership are extremely important when managing an expert organization. In military training, changes in the readiness of the group being trained requires that the trainer be flexible in the application of deep leadership. Based on earlier research, the premise must be that irrespective of the operating environment and the readiness of the group, deep leadership as an entity is normally more effective and more productive than controlling and corrective leadership. In certain situations the military leader must also be able to function decisively with the means of controlling and corrective leadership, and extremely by physical force.

Situational factors naturally have an effect on the opportunities of applying deep leadership. In situations where purposeful interaction is not possible, deep leadership cannot function either. The issue has also a reverse side, because the temporal permanence of the effects of deep leadership is decisively better than that of controlling and corrective leadership. From this results one of the most significant features of deep leadership: deep leadership has been noted to prevent many of the factors that impede the efficiency of an organization or group. Gal and Jones (1994) and Gal (1999), for example, state based on long-term studies that deep leadership significantly prevents battle stress from arising.

Commitment to mission is related to both the area of operations and situational factors. In this book the contents information of the leadership training program is presented at a general level. In the development of leadership behavior, however, the premise must be the task of the individual leader and the demands and restrictions set by the level of leadership. As mentioned earlier, a squad leader and a brigade commander probably apply deep leadership a little differently. In a military organization the differences between services and branches must also be taken into consideration.

In the leadership training of conscripts particular emphasis must be placed on the concretization of the basic principles of deep leadership, i.e. the contents of the cornerstones, into forms of behavior worth pursuing in the environment the leader trainee

will function in. This work should be carried out *together* with the trainees, beginning already in the non-commissioned officer courses and reserve officer courses.

It must be remembered that real leadership is born in the formation process of subordinates' perspectives of meaning. A conscript adjusts the leadership behavior of an officer cadet to his own expectations and experiences. The same is done by a captain working as a company commander in relation to his commander. However, the experience background and perspectives of meaning related to leadership that the conscript and the captain have are different. The result is that even though both, as subordinates, value for example the skills of individual consideration their respective commanders have, in practice they expect slightly different behavior. Furthermore, there are sometimes even great differences between subordinates.

This is a lasting challenge to us all in the development of our leadership: in a new environment surrounded by new people, we must actively seek feedback and update the efficiency of our own leadership behavior in changed conditions. For this reason our leadership is never complete, but requires constant learning.

Juuti (2001) reviews different aspects and approaches to leadership from the perspective of social constructivism. In general, he sees that leadership is much more important concept than management in the postmodern organizations. At the same time, he accuses that the new paradigm of leadership has lost the best attributes and ideas originally presented by Burns (1978):

> *".. content of the core concepts by Burns has been transformed to fit the modern rationality by Bass (1985). Transactional leader has become "a bad boy" in this new story. Transformational leaders are seen as modern heroes, who manipulate other people through their leadership... Bass has diminished the phenomena of transformational leadership to the level of simple questionnaire.."* (Juuti 2001, 292 - 293).

The critique by Juuti is based on several basic failures. The source of information he uses (Bass 1985) is not valid anymore, because the paradigm has developed and much more relevant books would have been available, like Bass (1998); therefore also the latest theoretical changes, like move apart from the concept of charismatic leadership are beyond Juuti´s analysis. Juuti sees that the modern form of transformational leadership is

totally a mind-centered process; this reserarch is an example that this is not the case (see Figure 4). Juuti prefers to *"tell stories"* about leadership, he does not want to say who is a good or a bad leader (Juuti 2001, 299). The main point here is that in his latest book, Juuti sees leadership as a purely theoretical concept. The new paradigm of leadership sees leadership as intentional interaction and practises, through which we able to create and execute effective leadership training programs. *Juuti claims for better leadership, but how he is going to reach that goal in the society, if not through education and learning?*

Simply interpreted, deep leadership places great, even unsurpassable demands on an individual leader. The exacting nature of the model is emphasized especially in the training of young military leaders. *Is it realistic to build leadership training on such a demanding model?*

The deep leadership model has been built to act as a tool for leadership training that gives a direction to development aspirations. Those receiving leadership training must be offered the basis to evaluate their own leadership behavior so that preconditions for development as a leader would be created. In this sense the deep leadership model has been meant to act as an extensive reflective surface for the assessment of personal feedback and the making of development decisions. Deep leadership is not therefore the absolute aim of training, but a tool and direction for life-long learning. On the other hand it should be noted that the starting points of deep leadership require a certain basic potential that the trainee must possess in order for development to occur. This places demands on the selection process of leaders.

Leadership training in a military organization is not free of values, but value-wise deep leadership sets concrete and even unavoidable demands. The values emphasized by deep leadership are not dictated by the military organization, though, but they are based on democracy, Christian ethical thinking and development-oriented conception of human beings. Based on experiences obtained, the renewed leadership training does not contain significant value conflicts. Deep leadership offers tools for the reconciling of communal values and individual needs.

At the level of values, development as a leader is always also growth as a human being. Even though all leader trainees do not seem to possess direct potential for this, time must be allowed to have its effect according to the principles of life-long learning. An essential part of developing leadership is the clarification of the borderlines of one's own activities

and conception of human beingss. Training has to be able to deal with problems related to plurality and increase the recognition and handling of them. It is also evident that due to life experience and leadership experiences the deep leadership model does not completely "unfold" to nearly all conscript leaders. The military organization does not, however, have any other possibility of training its leaders for the reserve. On the other hand, goal-setting has originally taken place in a much more extensive time frame: military service gives only the first push to development as a leader. The goal is that understanding and applying deep leadership deepens as life experiences accumulate, in which case reserve leaders can be expected to develop as leaders in their civilian duties as well. This way the leadership training of the Defence Forces has an effect on the rest of our society. The objectives of training must be set high, if there is a wish to achieve significant results.

Is leadership training built this way too theoretical for the military? The FDF has always had leaders and instructors who have achieved excellent results with their outstanding leadership behavior. The personnel of the Defence Forces accepts most of the contents information of the deep leadership model at all levels of leadership. This is an essential fact regarding the leadership training reform. How many individuals will be able to carry out the principles of deep leadership in practice is a totally different issue.

At organization level the greatest challenges have to do with established structures and routines as well as feedback culture. With deep leadership the duties of a peace time military leader lean towards coaching, which means the logical development of the abilities of subordinates in everyday work. This applies to all military leaders, not only to the instructors of conscripts. The development of leadership behavior at individual level, such as carrying out the ideas of quality management at company level, require also the logical development of feedback culture in the entire military organization. Tasks that are so challenging that they almost "force" the individual to develop and learn something new should be offered to all military leaders from time to time. In addition to the normal training routine, various war and combat exercises and battle shootings offer opportunities for this. Questions relating to material responsibility and service safety have to be resolved so that instructors can give some responsibility to conscript leaders as well.

In a military culture many things are learned through example. Therefore deep leadership as the basic solution of training requires that every instructor evaluates his own leadership behavior in relation to the goals of training. If the conflict between a model taught at the

training phase and the real life encountered at a company is too great, it may cause serious damage to the entire system. Thus the responsibility of company commanders and battalion commanders as the developers of the leadership behavior of their subordinates is undivided. The opportunities of deep leadership are tightly connected to an individual's intellectual balance and healthy self-confidence. All leadership training should take place so that learning and the guidance of learning include purposeful strengthening and development of the trainees' self-confidence.

The execution of a systematic feedback system is a new routine. This new routine should be analyzed in relation to the overall benefit it yields, though. The Rapid Data Analysis System (RDAS) is still being developed so that it would be as easy as possible to produce the leadership profiles for the trainees. The goal is that every military leader, including conscript leaders, is able to produce his feedback. Almost without exception everyone is so interested in his own feedback that he is willing to study it off duty, after work and office hours.

The execution of the leadership training program as a real part of all training requires that things are placed in order of importance, and that overall educational planning is carried out based on this order. In the field, planning must fully take advantage of the experience and new ideas of the professional personnel of the Finnish Defence Forces. Responsible educational planning includes prioritizing things in relation to the organization's main duty, especially within the limits of limited resources. Showing points of emphasis and defining orders of importance are in the end the duties of commanders. There is already plenty of feedback information about the deep leadership model as a basic solution of leadership training in the FDF. The trainee feedback supports the new training program strongly both in training of conscripts and cadets (Kallioinen, 2001).

Does deep leadership weaken military discipline? In order to answer this question, military discipline must be defined. Military discipline means the exact following of the orders given in accordance with the General Instructions of Military Service. The existence of military discipline is based on an internal and external source. External, i.e. formal discipline means usually the activities of a superior and a military leader, in which a unit and a group is consciously trained to function in accordance with the definition of military discipline. Internal, i.e. functional discipline means that an individual and a group are motivated and attempt voluntarily to perform as well as possible in order to achieve a situation in accordance with the definition of military discipline. Based on what was said above, the

connection of military discipline to deep leadership is even surprisingly clear. Controlling and corrective leaders nevertheless emphasize the source and essence of external discipline. Deep leaders believe more in the efficiency of internal discipline in reaching objectives than controlling and corrective leaders. Like leadership, discipline too needs its both dimensions. The question is about finding in each situation and training stage the right balance between internal and external discipline.

In his case-study, Nurkkala (2001) has studied the possible implications of the new leadership training program towards the level of discipline in Savo Brigade. Nurkkala found empirical support to the following conclusions:

- the better leadership profile a military leader has (measured with DLQ), the less his/her subordinates have problems to cope with military discipline,
- since the new leadership training program became effective (1998), the number of loyalty-crimes against military leaders has decreased 77 %.

Nurkkala concludes, that the impact of deep leadership towards military discipline is positive. The leaders emphasize more the internal nature and sources of discipline and they help their soldiers to cope with the stress caused by military discipline.

The increase of deep leadership will shift the essence and focus of military discipline towards the source and essence of internal discipline. This does not mean the weakening of external discipline as long as the leader is somehow able to set reasonable goals for operations and explain the reasons for his actions. On the other hand, aimless activity and bullying that stem from the arbitrary actions of a military leader will disappear as deep leadership gains more ground. Military discipline is often associated with the formal position of the leader and its "manifestation". If the military leader, pursuing deep leadership, is able to gain the trust and respect of his subordinates, his orders will be followed. This kind of a military leader will be trusted and obeyed without questioning also when a crisis strikes.

PART III

EMPIRICAL RESEARCH

"The quality of a theory is determined by the state of development of the particular discipline. The early stages of a science must be dominated by empirical work, that is, the accumulation and classification of data. This is why, as we shall see, much of educational research is descriptive. Only as a discipline matures can an adequate body of theory be developed. Too premature a formulation of theory before the necessary empirical spadework has been done can lead to a slowing down of progress."

Louis Cohen and Lawrence Manion (1994, 16)

8. EMPIRICAL RESEARCH DESIGN

Research and theory on leaders´ effectiveness are highly dependent upon the concepts used to describe leadership behavior and the methods used to measure this behavior. Progress in learning about effective leadership behavior has been slowed by a proliferation of behavior concepts and a lack of accurate measures of these concepts. In most cases, the behavior concepts have been measured by a questionnaire constructed hastily without slow and tedious research needed to properly validate this type of measuring device. (Yukl et al 1990, 223.)

8.1 Background, purpose and hypotheses

In 1995, a program of research was initiated to develop the leadership training of officers in the NDC. In 1998, when the conscription training system was renewed, the new leadership training program was enlarged to cover also the training of the conscript leaders, as well as the training of warrant officers. During the last couple of years, the continuous development of this program has been quaranteed by a close cooperation between NDC and The Training Division of the Defense Staff. The main tools of development have been refresher training for military instructors and systematic use of organizational feedback concerning all the aspects of this leadership training program.

In 1996, it was noticed that a respective leadership behavior questionnaire will be needed to back up the personal development as a leader. The research on the questionnaire has been carried out along the development of the whole leadership training program. The questionnaire was seen to be a vital element in order to stitch up the gap between theory (model) and practice in the era of leadership training. Therefore the questionnaire should actually be reflecting the ideas of the model used in the training phase. I will turn back to this process later on.

It has to be noticed that the development of army leadership training has been faster than the writing process of this research. Firstly, the Deep Leadership Questionnaire (DLQ) studied here has already been in operating use at national level since July 1999. The decision concerning the use of DLQ in the field was made based on the preliminary and unpublished empirical results of this study. Secondly, the development of the army leadership training is being supported by quite a large research project covering also other

studies than this research. In some of these studies, the DLQ has already been used as an instrument of gathering data for different kind of research purposes.

In theory, the Deep Leadership Questionnaire (DLQ) seems to be working for its own justification, because a leader´s behavior and its outcomes obviously correlate with each other when evaluated by the same person. *Thus, this is not the way the DLQ should be evaluated. In the leadership training program, the DLQ is an developmental instrument for an individual leader.* For example, it is not the purpose in this study to confirm the assumption that deep leadership is positively correlated to better results in an organization, although also this point of view will be covered in the context of criterion-related validity.

The following hypotheses and research questions are based on the theory of transformational leadership and on the previous research (see chapter 6). Actually, the parts I and II of this research are the introduction to these hypotheses. The main focus in this empirical study is to find out, whether the DLQ is a valid and theory-based feedback instrument capable to produce reliably leadership profiles. The data will be used:

A. To examine the behavioral factor structure of the improved Deep Leadership Questionnaire and the construct of the Deep Leadership Model
B. To analyze the leadership profiles of military leaders and instructors at the squad and platoon level.

The following hypotheses were formulated for the behavioral factors, the whole structural model and the leadership profiles in the sample:

1. Leadership behavior is a six-factor structure.
2. Deep Leadership Model has three second-order factors.

8.2 Method

8.2.1 Development of the DLQ

Development of the DLQ started in 1996. The early research relied mostly upon factor analysis of questionnaire items to identify behavior categories. Also critical incidents and interviews were used in the beginning. The data for the factor analysis was gathered as the DLQ was used as a feedback tool for infantry cadets during their practical training

periods in the field. After two months service in a training company, the cadets had their feedback by the current version of the DLQ, following the 360º principle. During 1996 - 1998, several versions of the questionnaire were tested. However, the early factor analysis failed to provide a stable solution across samples, despite the use of orthogonal rotation. It became obvious that development of a theory-based, meaningful and parsimonious taxonomy would require a variety of approaches.

The decisive step for the current DLQ was the formulation of the Deep Leadership Model in the late 1998´s (see figure 19). Prior research and theory on transformational -transactional leadership measurement (reviewed in the chapter 6) provided clues about potentially important aspects that should be included in a comprehensive model. The comparison with earlier research provided a good basis for resolving some inconsistensies stemming from the other forms of analysis. The very basic innovation was to integrate the three-dimension frame of leadership behavior to the prior research on modelling the transformational leadership. It was found out, that it really was possible to fuse the empirical research about the modelling, the frame of leadership behavior, the cultural aspects in Finland and the reexamined war experiences into a cohesive whole: the DLM was formulated.

The determination of category width and number of categories in a behavior taxonomy is highly arbitrary. Different theorists have different perspectives about the “correct” categories, even when empirical methods such as factor analysis and multidimensional scaling are used (Yukl et al 1990, 224). I tried to keep the model as parsimonious as possible, which is the reason for collapsing some narrow or somewhat confusing factors (especially concerning transactional dimension) into more general ones.

Finally, generalizability to external as well as internal contexts was desired for the behavior factors. That is, I sought to identify items of behavior that are relevant for interactions with peers, superiors, and even outsiders in addition to subordinates. The wording of items includes group-oriented wording (“consideres other people..”) as well as dyadic wording (“listens to me”), because transformational leadership includes both group-oriented and individual-oriented mechanisms. The emphasis was to make the questionnaire as suitable as possible for describing the behavior of the military leaders in low level (from squad leader to company commander).

The Deep Leadership Questionnaire (DLQ) is a feedback tool developed for model-based, institutionalized leadership training. Potential is a dimension reflecting total personal capabilities. According to the constructivist conception of learning, the process in which the potential is utilized or enlarged is merely intrapersonal. In the questionnaire there is only one factor related to potential: *professional skills* is something that can be observed and judged by other people.

The six leadership behavior factors are the main body of the questionnaire:

1. Building trust and confidence (BT).
2. Inspirational motivation (IM).
3. Intellectual stimulation (IS).
4. Individualized consideration (IC).
5. Controlling and corrective leadership (CL).
6. Passive leadership (PL).

Three outcome factors - satisfaction, effectiveness and extra effort - have been included in order to reflect and relate leadership behavior to some relevant outcomes. The empirical results reported by Bass (1998a) shows us that there is a strong positive correlation between transformational leadership behavior and outstanding results. Beyond effectiveness, satisfaction and extra effort, there could also be some other relevant outcomes, like group cohesion. It is a question for further research to integrate e.g. the real performance data to the questionnaire.

The most notable cultural aspect is the *language*. Almost all the research and sources of information concerning the new paradigm of leadership and transformational leadership is being written in English. As noticed along the previous years, it is not enough just to *translate* the concepts. There are many concepts in the era of leadership, that has had no corresponding concepts or terms in the Finnish language. Further on, there are quite similar terms in these languages, but the actual meaning and content of a term can be quite different.

The theory, concepts and terms had to be deeply analyzed in the first place and after this process re-written into Finnish language. This is also the reason why the DLQ shown in Appendix A is in Finnish language. Because of the conceptual differences and problems in between the languages, it is unprobable that the DLQ would be psychometrically as

valid as it is now if it would be translated in to English language. The respective instructional guide for a leader is shown in Appendix B.

Also, the latest qualitatitive (interviews) and quantitative (postal surveys) studies as well as the previous research concerning Finnish war experiences have been used to fit the theory of transformational-transactional leadership into the Finnish military culture. Besides the large empirical study made by The Finnish Reserve Officer Union in 1995, the third year cadets have made half-structured interviews with the war veterans since 1997. For example, Tanninen (2000) has used this qualitative data collected through interviews in his study. The DLM has been validated with a comparative method from this point of view.

FACTOR	ITEMS	EXAMPLE
Professional skills (PO)	4	He/she has the knowledge and skills of a competent leader
Building trust and confidence (BT)	3	When necessary, he/she will go beyond self-interest for the good of the group
Inspirational motivation (IM)	3	He/she is enthusiastic to explain what will happen if we reach our objectives
Intellectual stimulation (IS)	3	He/she is open-minded to new ideas
Individualized consideration (IC)	4	He/she gives personal support to subordinates
Corrective/controlling leadership (CL)	3	He/she focuses on checking for mis-takes
Passive leadership (PL)	4	He/she is not able to make decisions
Satisfaction (SA)	2	I am satisfied with his/her leadership behavior
Effectiveness (EF)	2	He/she meets the training objectives effectively
Extra effort (EE)	2	He/she is able to make me try harder

Table 5. DLQ (version 8a99) factors and examples of items

After a psychometric analysis, the pilot study for the current DLQ was executed in December 1998, with a sample of 54 officers and their 1354 subordinates by using version 5a98 of the DLQ. Holma (1999) has used and reported this data in his research. After trimming the DLQ according to the results of factor analysis with this data (reported in paragraph 9.2), the current DLQ (version 8a99) consists of 30 items measuring 10 factors, as shown in Table 5.

8.2.2 Conscription in the FDF

The data collected for this study comes from the conscript training environment. Therefore it is necessary to shortly describe the conscription system in the Finnish Armed Forces. In general, military service in Finland is done within the two years following call-up, at the age of 19 or 20. It is possible to volunteer at 17, and deferment can be granted until the end of the year in which a man turns 28. Conscripts enter the Army, the Air Force and the Navy twice a year. Military service lasts 180, 270 or 362 days. Those conscripts who are trained to be leaders has the longest training period, 362 days. In Finland, more than 80 per cent of the age group do their military service, including voluntary women.

The aim of training is to create combat-efficient troops for the reserve. Conscripts have to learn to operate effectively both as individuals as well as members of a team. Service is entered twice a year, in January and in July. The basic training period of every conscript lasts eight weeks. In the end of this period, a selection process will take place: each conscript must be trained for wartime duties according to his or her abilities and talent. In the Army, the leaders-to-become start their leadership training at the squad level. Later on, approximately 30 per cent of the squad leaders are selected to be trained platoon commanders in reserve officer courses.

After these courses, the conscript leaders return to their home units and start to serve as leaders for the next age group beginning with the basic training period. During the last months of service, the conscripts receive training in the units´ war time organization. This has been seen as a vital element of training in order to create operationally competent units with *cohesion and mutual trust*. The vacant instructors in the garrisons (young officers and warrant officers) are responsible of planning and executing the training of these war time units. The goal is, that the instructors would act as coaches for the conscript leaders. This relationship between instructors and leaders provide a true opportunity for experiential learning and enhances the practical skills of the conscript leaders.

8.2.3 Data collection and descriptives

During January 1999, as a part of leadership training seminars in garrisons, the objective and methods of this study were introduced to military trainers (officers and warrant officers). These seminars took place in three main training centers of the Finnish Army:

Jaeger Brigade, Kainuu Brigade and Pori Brigade, representing Western and Northern Commands. One training center (Karelia Brigade, Eastern Command) contributed to the sample following written orders. Beyond the lectures concerning the renewed leadership training program, the individual trainers were instructed and motivated to contribute to this study. At the headquarters level, practical execution of this study was formulated by detailed instructions and given to training companies as a written order. According to the ethical principles in this kind of studies, a complete anonymity was guaranteed for both the leaders and their subordinates conducted in the sample.

At the end of the eight-week basic training period of the current conscript service (March 1999), the feedback evaluations were collected on three levels:

- squad leaders (conscripts) were evaluated by their whole group,
- platoon commanders (conscripts) were evaluated by at least half of their platoon, including all the squad leaders and
- platoon main instructors (officers and warrant officers) were evaluated by at least half of their platoon, including the platoon commander and all the squad leaders.

The evaluation by subordinates was executed using DLQ. Raters completing the DLQ evaluate how frequently, or to what degree, they have observer the military leader engage in four items of leadership potential, 20 items of specific behaviors and six items of specific leadership outcomes. A five-point scale for rating the frequency of observed leader behaviors is used and bears a magnitude estimation-based ratio of 4:3:2:1:0, according to the tested list of anchors (Bass & Avolio 1997, 14). The anchors (rating scale for leadership items) are:

A. = Not at all (0)
B. = Once in a while (1)
C. = Sometimes (2)
D. = Fairly often (3)
E. = Frequently, if not always (4)

Simple, clear instructions and sample items allow respondents to complete the questionnaire without direct supervision. On average, it takes approximately only 10 minutes to complete the questionnaire, which one important criteria for operationally solid measurement in military training. Since the questionnaire is self-explanatory, the primary issue in its administration is the maintenance of privacy and anonymity, with the exception

of the single supervisor rating the leadership behavior of his or her direct report. Strict confidentiality must be assured to the respondent. In military organization, the distribution and use of the questionnaire is normally a part of the daily schedule when needed. There is no problem with the loss in the sample. Thus, the data does not include any individual background information. Instead of full range feedback evaluation, the data consist purely of subordinate ratings.

Evaluated person	Number of leaders	Number of respondents	Average R/L
Squad leader	99	1024	10,4
Platoon commander	62	1290	20,8
Platoon instructor	80	1875	23,4

Table 6. Leaders and respondents in the sample

The answering sheets were then mailed to the researcher. The mailing was administrated by the headquarters of each of the garrisons. The total number of respondents was 4189. Altogether 251 leaders and instructors were evaluated. The minimum number of subordinates responding about the behavior of a leader is three persons. Due to this principle, ten leadership profiles were deleted, because the number of respondents was too low (Bass & Avolio 1997). The final number of leader profiles in the sample was 241. The number of evaluated leaders and the number of respondents are shown in Table 6.

Command / Army branch	Western Command	Eastern Command	Northern Command	*Total*
Guerilla/recon	-	-	29	29
Jaeger	40	4	60	104
Fire support	-	4	17	21
Anti-tank	3	-	10	13
Engineer	-	12	-	12
Field artillery	-	43	-	43
Signals	-	13	6	19
Total	43	76	122	**241**

Table 7. The Army Command and branch of the leaders in the sample

The answering sheets were read optically into 241 personal files by using the RDAS program, which has been developed for the Finnish Army for basic research and rapid analysis. The data was saved and leadership profiles were analyzed by using the SPSS and SAS programs. The hypothesized model was tested statistically by using the EQS

program in a confirmatory analysis of the entire system of variables to determine the extent to which the model is consistent with the data. The preliminary, not reported neural cluster analysis have been done with Matlab program. The leaders in the sample represent widely the branches of the army, as shown in Table 7. Thus, this data available is not sufficient for comparisons between different army branches.

Descriptive Item Statistics Extracted from Basic Data								
	N	Range	Minimum	Maxi-mum	Mean	Sd.Error	Std. De-viation	Variance
PO1	4189	4	0	4	3,04	0,01	0,95	0,9
PO2	4189	4	0	4	2,71	0,02	0,97	0,95
PO3	4189	4	0	4	2,85	0,02	0,97	0,95
PO4	4189	4	0	4	2,77	0,02	0,99	0,98
BT1	4189	4	0	4	2,68	0,02	1,03	1,07
BT2	4189	4	0	4	2,36	0,02	1,05	1,1
BT3	4189	4	0	4	2,78	0,01	0,94	0,88
IM1	4189	4	0	4	2,59	0,02	1,07	1,14
IM2	4189	4	0	4	2,42	0,01	1	1
IM3	4189	4	0	4	2,45	0,02	1	0,99
IS1	4189	4	0	4	2,37	0,01	0,95	0,9
IS2	4189	4	0	4	2,22	0,02	0,99	0,99
IS3	4189	4	0	4	2,36	0,01	0,9	0,81
IC1	4189	4	0	4	2,51	0,02	1,1	1,22
IC2	4189	4	0	4	2,63	0,02	1,08	1,17
IC3	4189	4	0	4	2,5	0,02	1	1
IC4	4189	4	0	4	2,2	0,02	1,09	1,18
CL1	4189	4	0	4	1,8	0,02	1,1	1,21
CL2	4189	4	0	4	1,53	0,02	1,01	1,02
CL3	4189	4	0	4	1,3	0,01	0,96	0,93
PL1	4189	4	0	4	1,16	0,02	1,13	1,27
PL2	4189	4	0	4	1,03	0,02	1,08	1,17
PL3	4189	4	0	4	1,07	0,02	1,05	1,11
PL4	4189	4	0	4	1,11	0,02	1,09	1,18
EF1	4189	4	0	4	2,64	0,01	0,93	0,87
EF2	4189	4	0	4	2,24	0,01	0,96	0,93
SA1	4189	4	0	4	2,65	0,02	1,13	1,27
SA2	4189	4	0	4	2,68	0,02	1,18	1,39
EE1	4189	4	0	4	2,23	0,02	1,11	1,24
EE2	4189	4	0	4	2,19	0,02	1,13	1,28

Table 8. Sample descriptives (30 single items in factor order)

As seen in Table 8, concerning all the items, the full range (0 - 4) of the answering scale was used by the respondents. Standard deviation and variance of items can be seen as agreement in ratings. The less variation the more agreement. A value of 0.00 would mean

complete agreement. According to Bass and Avolio (1997), the value of 1.00 can be interpreted to be a medium variation as measured by the standard deviation of the scale. The respective single item as well as factor data frequencies are shown in Appendix C.

Descriptive Factor Statistics Extracted from Personal Leadership Profiles								
	N	Range	Minimum	Maxi-mum	Mean	Std. Error	Std. De-viation	Variance
PO Factor	241	3,27	0,61	3,88	2,74	0,03	0,58	0,34
BT Factor	241	3,5	0,33	3,83	2,56	0,03	0,56	0,32
IM Factor	241	3,36	0,56	3,92	2,41	0,03	0,58	0,34
IS Factor	241	3,17	0,56	3,73	2,3	0,03	0,48	0,24
IC Factor	241	3,43	0,57	4	2,45	0,03	0,58	0,34
CL Factor	241	2,76	0,14	2,9	1,53	,03	0,36	0,14
PL Factor	241	2,5	0	2,5	1,11	0,02	0,45	0,21
EF Factor	241	3,38	0,5	3,88	2,39	0,03	0,56	0,32
SA Factor	241	3,67	0,33	4	2,62	0,04	0,71	0,51
EE Factor	241	3,67	0,33	4	2,18	0,04	0,65	0,43

Table 9. Factor descriptives

As shown in Table 9, the factor descriptives are extracted from personal leadership profiles. PO-factor, which emphasizes the professional skills of a military leader, has the highest mean (2.74) of all the factors. From this point of view, practical and skills-oriented training of the low level military leaders has been quite successful in the Finnish Army. Among the four deep leadership factors, the highest is the BT-factor (2.56) and the lowest is the IS-factor (2.30). Controlling/corrective leadership (CL) factor (1.53) and PL-factor (1.11) have clearly lower values than deep leadership factors, as expected. The outcomes seem to form normally a factor order with highest value of Satisfaction (SA) factor (2.62), followed by Effectiveness (EF) factor (2.39) and Extra Effort (EE) factor (2.18). *All these differences are statistically significant at .000 level.*

In the chapter 9 I will analyze these results, factor relationships, latent constructs and causal paths more closely. Thus, the means and respective order of potential and deep leadership factors are reflecting the military culture in the Finnish Army. Over time, there

has been a strong emphasis on selecting and training a combat leader, who can be trusted by his/her subordinates because of high level personal skills and effectiveness. On the other hand, the "dark side" of this practical skills and leader-oriented mood in the Army has been the multi-faced under-estimation of competencies of the individual soldiers.

Through the years of independency, there has been a goal in military training manuals to train "independent fighters with personal initiativeness". This is not the case even today, as found out in a study in PSO-environment (Lahdenperä & Harinen 2000). The comparatively low values of Inspirational motivation (IM) and especially Intellectual stimulation (IS) in the average leadership profiles set us a challenge for change.

Factor Intercorrelations										
Pearson Correlations	PO FAC-TOR	BT FAC-TOR	IM FAC-TOR	IS FAC-TOR	IC FAC-TOR	CL FAC-TOR	PL FAC-TOR	EF FAC-TOR	SA FAC-TOR	EE FAC-TOR
POFACTOR	1									
BTFACTOR	0,78	1								
IMFACTOR	0,71	0,72	1							
ISFACTOR	0,62	0,69	0,7	1						
ICFACTOR	0,65	0,71	0,68	0,74	1					
CLFACTOR	-0,12	-0,13	-0,09	-0,1	-0,19	1				
PLFACTOR	-0,47	-0,41	-0,35	-0,26	-0,35	0,31	1			
EFFACTOR	0,73	0,69	0,71	0,64	0,65	-0,1	-0,37	1		
SAFACTOR	0,71	0,69	0,67	0,65	0,74	-0,23	-0,4	0,69	1	
EEFACTOR	0,63	0,65	0,71	0,64	0,67	-0,14	-0,29	0,69	0,72	1
All correlations Significant (2-tailed) at level 0.000										

Table 10. Factor correlations

Most of the factor intercorrelations are relatively high, as seen in Table 10. Respectively, the single item correlations are shown in Appendix D. Professional skills (PO) factor has quite strong correlations with all the deep leadership factors as well as with the outcome factors, but slightly negative correlation with Controlling/corrective leadership (CL) factor (-.12) and clearly negative correlation with Passive leadership (PL) factor (-.47). Mutually, CL and PL factors have a positive (.31) intercorrelation. In between the deep leadership factors, the intercorrelations vary from .68 to .74. In between the outcome factors, the intercorrelations vary from .69 to .72.

Reliability Coefficients Extracted from Raw Data Matrix						
	Items	N	**Alpha**	**Split-half**	**Guttman**	**Parallel**
PO factor	4	4 189	.90	.87	.90	.90
BT factor	3	4 189	.78	.76	.78	.78
IM factor	3	4 189	.81	.81	.81	.81
IS factor	3	4 189	.76	.78	.76	.76
IC factor	4	4 189	.84	.83	.84	.84
CL factor	3	4 189	.55	.58	.55	.55
PL factor	4	4 189	.77	.79	.77	.77
EF factor	2	4 189	.73	.73	.73	.73
SA factor	2	4 189	.84	.84	.84	.84
EE factor	2	4 189	.86	.86	.86	.86

Table 11. Factor reliability coefficients

In table 11 are shown the different factor reliability coefficients extracted from the raw data matrix and single items. The more detailed analysis of the reliability of the DLQ will follow in the paragraph 9.5. These reliability coefficients are not quite high, especially concerning the CL factor (.55 to .58). Thus, the same explanation as with factor correlations is relevant in the context of reliability: the relevance is higher when the leadership profiles form the data base, as will be discussed in the paragraph 9.6. On the other hand, the CL factor will be reexamined in order to improve the understanding of this dimension and the overall validity of the DLQ.

9. RESULTS

The choice of psychometrically sound instruments has an important effect on the credibility of all study findings. Thus, such methodological selection becomes even more critical when the observed measure is presumed to represent an underlying latent construct, like in this study. The best known statistical procedure for investigating linkages between sets of observed and latent variables is that of factor analysis. In using this technique, the researcher examines the covariation among a set of observed variables in order to gather information on their underlying latent constructs (factors). Explanatory factor analysis (EFA) is designed for the situation where the links between observed and latent variables are unknown or uncertain. The analysis proceeds in an explanatory mode to determine how the observed variables are linked to their underlying factors.

Typically, the researcher wishes to identify the minimum number of factors that underlie the observed variables. It should be bared in mind, that correlation is no proof of causation (Pedhazur 1982, 579). In contrast to the EFA approach, confirmatory factor analysis (CFA) addresses the situation where the researcher wishes to test the hypothesis that a particular linkage between the observed variables and their underlying factors does in fact exist (Dunn et al 1993, 59).

The factor analytic model focuses solely on how the observed variables are linked to their underlying latent factors. More specifically, it is concerned with the extent to which the observed variables are generated by the underlying latent constructs. The strength of the regression paths from the factors to the observed variables is of primary interest. Although correlational structure among the factors is also of interest, any regression path structure among the them is not considered. Given its sole interest in the link between factors and their measured variables, the CFA model, within the context of structural equation modeling (SEM), is considered to represent the measurement model (Byrne 1994, 5 - 6).

9.1 Confirmatory factor analysis and structural equation modeling

Structural equation modeling (SEM) is a statistical methodology that takes a hypothesis-testing (i.e., confirmatory) approach to the multivariate analysis of a structural theory bearing on some phenomenon. The hypothesized model can be tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to

which it is consistent with the data. The term *structural equation modeling* conveys two important aspects of the procedure:

1. The causal processes under study are represented by a series of structural (regression) equations.
2. These structural relations can be modeled pictorially to enable a clearer conceptualization of the theory under study. (Byrne 1994, 1.)

If goodness of fit is adequate, the model argues for the plausibility of postulated relations among variables; if it is inadequate, the tenability of such relations is rejected. Structural equation modeling is basicly a generic term for the various approaches to the analysis of causality (Pedhazur 1982, 637). The most important characteristics of SEM set it apart from the older generation multivariate procedures:

- it takes a confirmatory rather than an explanatory approach to the data analysis,
- it lends itself well to the analysis of data for inferential purposes by demanding that the pattern of intervariable relations can be specified a priori,
- it provides explicit estimates of parameters needed for assessing or correcting for measurement error,
- it allows to incorporate both unobserved (latent) and observed variables in a data analysis (Byrne 1994, 2).

In SEM procedures, every dependent variable needs its own equation, and there are as many equations in a model as dependent variables. Variables that do not have equations are independent variables. Some of the equations can reflect the factor analytic model, and others the simultaneous equation model. The variables in any equation can be measured or latent, or mixed in any way desired. To set up any model, no matter how complicated, an equation is generated for each dependent variable. Thus, too many indicators may make it difficult if not impossible to fit a model to data (Bentler 1980, 425).

The main new concept needed to specify a model involves the variances of the independent variables, and possibly, their covariances and correlations. The actual measurements are called interchangeably measured, observer or manifest variables. The hypothetical constructs or factors are normally represented by using synonymously terms unmeasured, unobserved or latent variables. The core parameters of concern in structural

equation models are the regression coefficients, and the variances and covariances of the independent variables.

However, given that sample data comprise observed scores only, there needs to be some internal mechanism wheryby the data are transposed into parameters of the model. This task is accomplished via a mathematical model representing the entire system of variables. Such a representation system can and does vary with particular SEM computer programs; in EQS, used in the statistical analysis of this study, the mathematical model derives from the work of Bentler and Weeks. The basic idea is that all variables in a model can be categorized as either dependent or independent variables. (Byrne 1994, 3 - 22.)

When building a model, some basic rules of *statistical identification* are needed, although it is a complex topic to explain in nontechnical terms. In broad terms, the issue of identication focuses on whether there is a unique set of parameters consistent with the data. Within the context of EQS, this question bears directly on the Bentler-Weeks approach to transposing the variance-covariance matrix of a set of observed variables (the data) into the structural parameters of the model under study. In a pictorial representation, asterisks will be placed beside all model parameters that are to be freely estimated. Respectively, the other parameters are to be fixed to a value of 1.0.

If a unique solution for the values of the structural parameters can be found, the model is considered to be identified, and the parameters are therefore estimable and the model testable. In the analysis, the model should be overidentified, in which the number of estimable parameters is less than the number of data points (i.e., variances, covariances of the observed variables). This situation results in positive *degrees of freedom* that allow for rejection of the model, therefy rendering it of scientific use. The aim in structural equation modeling, then, is to specify a model such that it meets the criterion of overidentification. In general, random errors of measurement in the independent variable lead to an underestimation of the regression coefficient (Pedhazur 1982, 523).

One rule of thumb with respect to residuals is that one can either constraint the path coefficient to some fixed value (say, 1.0) and allow the variance be freely estimated or, alternatively, fix the variance (to say, 1.0) and estimate the path coefficient. However, the free estimation of both types is not possible; the result will be an underidentified model.

Also, linked to the issue of identification is the requirement that every latent variable has its scale determined. In other words, for one of the regression paths leading from each factor to its set of observed indicators, some fixed value should be specified (typically 1.0). Alternatively, but pertinent to independent variables only, one could fix the factor variance to some known value (say, 1.0) and allow all factor loadings to be freely estimated (Dunn et al 1993, 44 - 46). It is important to note, however, that a scale of a dependent latent variable can not be determined in this way because the variances of dependent variables are never parameters of the model. (Byrne 1994, 16.)

In a SEM-based data analysis, *latent* variables are those representing theoretical constructs or abstract concepts that can not be observed directly and are rather presumed to underlie particular observed measures. These latent variables are regarded more commonly as *factors*. Because latent variables are unobservable, their measurement must be obtained indirectly.

In the context of DLM, the latent variables of interest are operationally defined in terms of leadership behavior believed to represent them. Assessment of deep leadership behavior then constitutes the direct measurement of the observed variables as well as the the indirect measurement of the underlying constructs (i.e, the hierarchical structure of leadership behavior and the structure of the whole model).

Although conceptually unnecessary, it makes sense in practice to differentiate among the measured and unmeasured variables:

- all measured variables are designated as **V**s,
- the latent construct itself (factor) is designated as **F**,
- a residual associated with the measurement of each observed variable (V) is designated as **E**,
- a residual associated with the prediction of each factor is designated as **D**.

Residual terms are indicative of less than perfect measurement of the observed variables, and less than perfect prediction of the unobserved factor (Dunn et al 1993, 67 - 72). As so, residual terms represent error. To distinguish error in measurement from error in prediction, the former is referred to as error (E), whereas the latter is termed disturbance (D).

The following pictorial presentations are in practice path diagrams, because they provide a visual portrait of relations that are assumed to hold among the variables under study. Measured variables are shown in boxes and unmeasured variables in ellipses. One-way arrows represent structural regression coefficients and thus indicate the impact of one variable on another. Curved two-way arrows represent covariances or correlations between pairs of variables.

Drawing on knowledge of the new leadership paradigm and previous empirical research on transformational-transactional leadership I have postulated the Deep Leadership Model (DLM) and the respective Deep Leadership Questionnaire (DLQ). By using the sample data gathered through DLQ, which should be seen as a linkage pattern a priori, I will test the DLM statistically.

9.2 Item spesification (potential dimension)

In the beginning, all the items were factor analyzed. Five items were eliminated:

- two potential items,
- one behavioral item,
- two outcome items.

This “item trimming” was done without modifying the conceptual model. As an introduction to the methodology used in this study, I will report here the item trimming of the professional skills (PO) factor, which is also the first main dimension of the DLM.

In the DLQ version 5a98, the PO factor was covered by six items. The first pictorial six-item structure with essential EQS summary statistics is shown in Figure 22. As an example, the respective EQS control information is shown in Appendix E. This information contains all the necessary information in order to analyze and also to improve, if needed, the fit of the structure at hand, i.e.:

- univariate statistics,
- residual covariance matrix,
- distribution of standardized residuals,
- goodness-of-fit summary,
- iterative summary, and
- variances of independent variables.

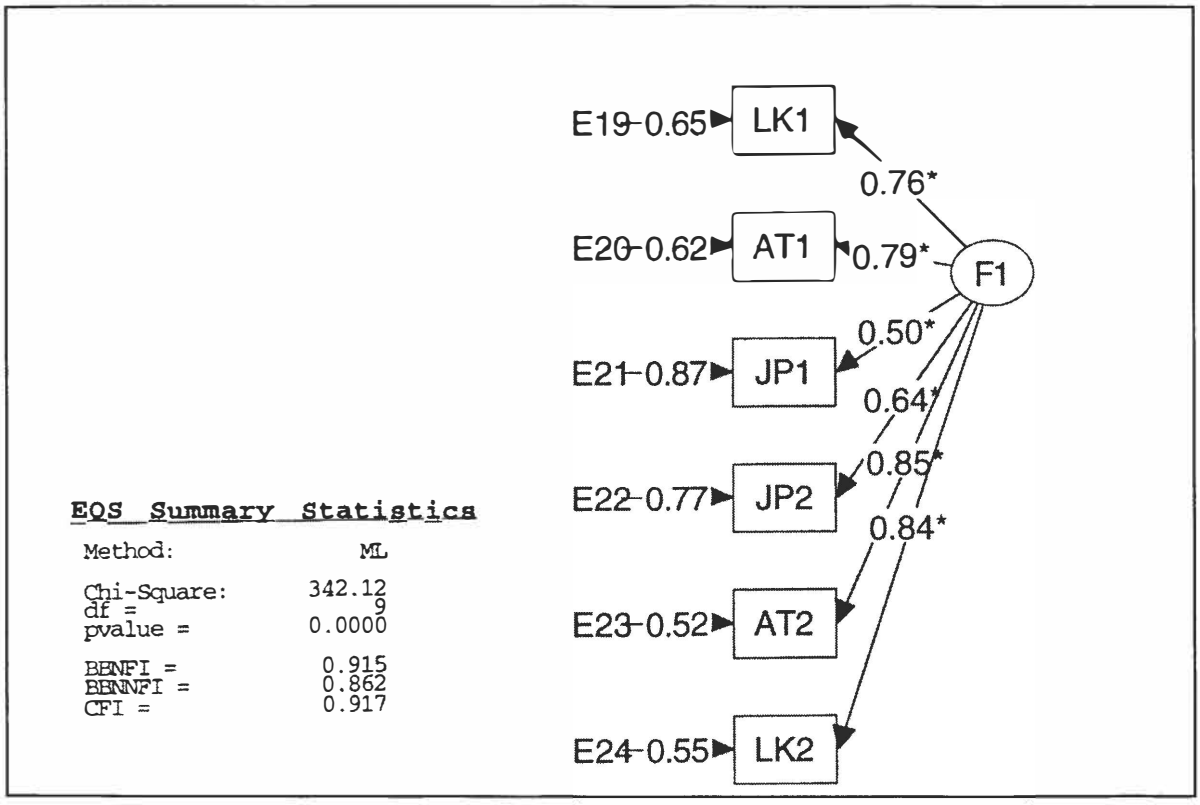


Figure 22. Structural analysis of six-item potential dimension.

In Figure 22, representing the six-item model of leadership potential, I can discern 6 observed variables, one factor, 12 regression coefficients (<---), 6 leading from the Fs to the Vs (these represent first-order factor loadings), and 6 indicating the impact of random measurement error on the Vs. In Bentler and Weeks´s terms, then, we have 6 dependent variables and 7 independent variables. Let´s now determine how many data points we have to work with. As noted earlier, these constitute the variances and covariances of the observed variables; with *n* variables, there are *n(n+1)/2* such elements. Because there are 6 observed variables, we have 6(6+1)/2 = 21 data points. Accordingly, we have 12 regression coefficients, yielding a total of 12 unknown parameters. Thus, with 21 data points and 12 parameters to be estimated, we have an overidentified model with 9 degrees of freedom.

The independence model chi-squared (x^2) statistic (here 4048.272 with 15 degrees of freedom, see Appendix E, page 5) provides a significance test for the hypothesis that the 6 observed variables are all mutually independent. If x^2 indicates that the observed variables actually are independent, then there would be no point investigating the output further. This would mean that either there is no covariance structure to be explored or, alternatively, the sample size is far too small to reveal any.

EQS provides a goodness-of-fit summary for the model, together with details of the iterations required to fit the model to the data. The central goodness-of-fit statistics are shown in figure 20. The CHI-SQUARE is 342.12, based on 9 degrees of freedom. The three respective fit indicis are normed fit index (NFI = .915), non-normed fit index (NNFI = .862) and comparative fit index (CFI = .917). Each of these is based on the value of the fitting function for the current model, and they have an upper limit of unity. The NNFI has the advantage of reflecting model fit very well at all sample sizes. Experience shows that these indices need to have values above 0.9 before the corresponding model can even be considered moderately adequate.

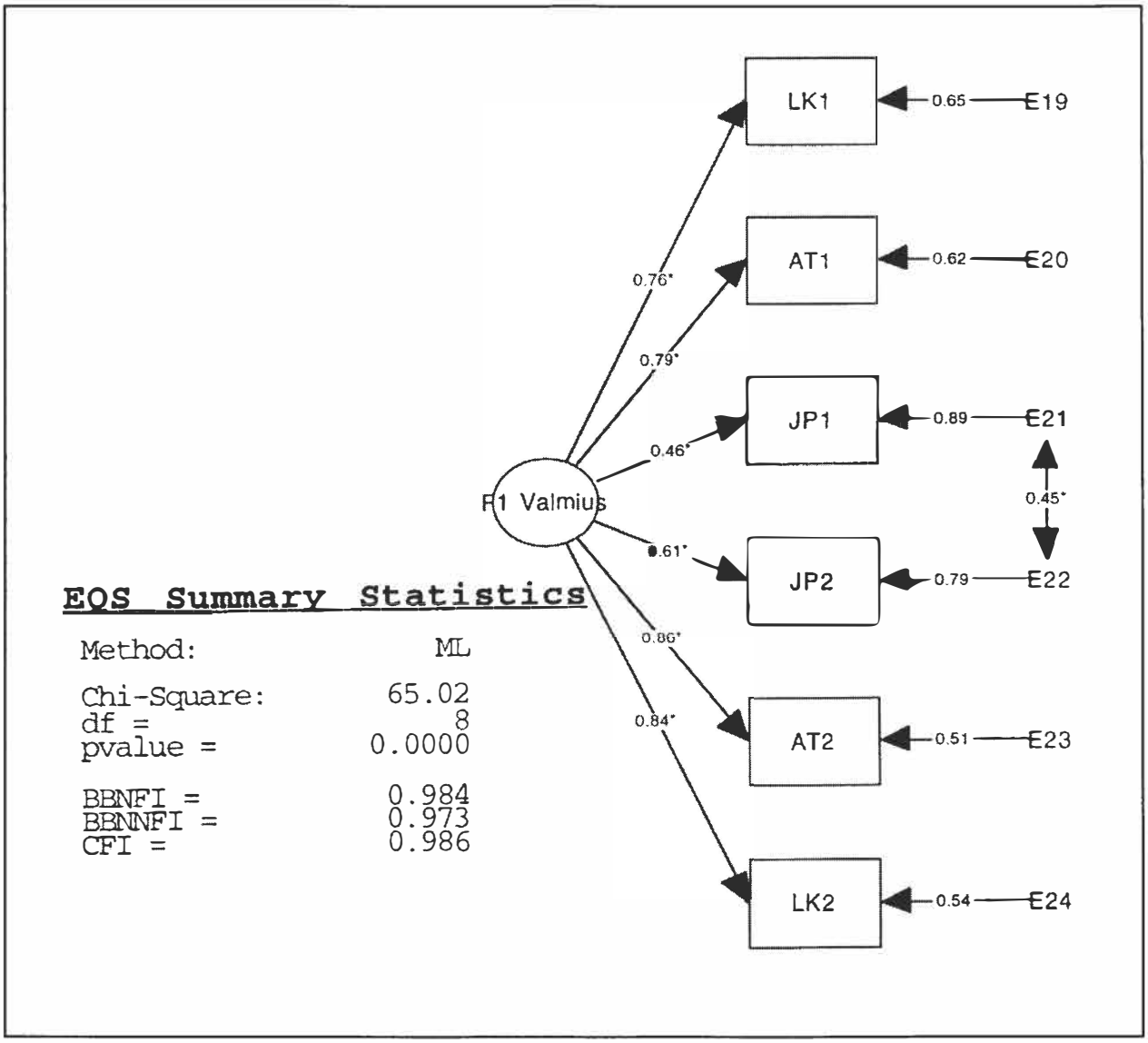


Figure 23. Improved structure of six-item potential dimension.

The associated *p*-value (here less than .001) is actually in the threshold which is indicating lack of fit. If interpreted literally, it indicates that the hypothesis represents an unlikely event because of an *p*-value close to zero (Byrne 1994). Since I use a relatively large

samples in these analyses, the chi-square test can not be considered useful in and of itself, because the results of this test will almost always be significant with large samples. Several researches have recognized the problems in using the chi-square test with large sample sizes and have recommended using other goodness of fit measures such as GFI, BBNFI and CFI (Avolio, Bass and Jung 1998; Byrne, 1994).

As a whole, the summary statistics reveals that this factor structure does not have a sufficient fit. The control information shown in Appendix E provides us tools to enhance the structure. The residual covariance matrix shows us that the problem with the current factor structure lies in the residual covariance between variables JP1 and JP2. This connection means, that to improve the fit we have to accept it by adding a two-headed arrow in between the respective residuals (Es). The improved structure is shown in Figure 23.

Thus, intercorrelating the error terms is a theoretical improvement to enhance the fit of this PO factor. For the DLQ version 8a99, these two variables were eliminated. The two other main dimensions of DLM were analyzed according to this example, and three more variables were eliminated. After this procedure, the deeper analysis of the six leadership behavior factors and the whole model became relevant. The outcome of this procedure was the DLQ version 8a99, which was the tool to gather the data analyzed in the following sections.

9.3 CFA of the six leadership behavior factors

The phenomenon of extraordinary leadership behavior is widely known and also empirically studied. Among the researchers under the umbrella of the new paradigm of leadership there is a strong agreement, that leadership behavior can be divided in three main behavioral dimensions: transformational (deep leadership), transactional (controlling/corrective leadership) and laissez-faire leadership (passive Leadership). Beyond these three main dimensions, there is a need (extracted mainly from the leadership training purposes) to go further and to specify a more accurate factor structure.

As reviewed in chapter 6, only in the context of MLQ several different factor structures have been identified and also operationally used during the last 15 years. The conclusion

is that the detailed behavioral factor structure needs to be defined according cultural and environmental characteristics.

HYPOTHESIS 1
Leadership behavior is a six-factor structure

The hypothesis underlying the DLM is, that in the military context, the best solution for leadership behavior is six-factor structure with four intercorrelated deep leadership factors, one controlling/corrective leadership factor and one passive leadership factor. CFA was used to test the the convergent and discriminant validities of each DLQ behavioral factor to examine the structural relations among the latent constructs. Specifically, these tests were conducted to determine whether the data confirmed the six-factor deep leadership behavioral model.

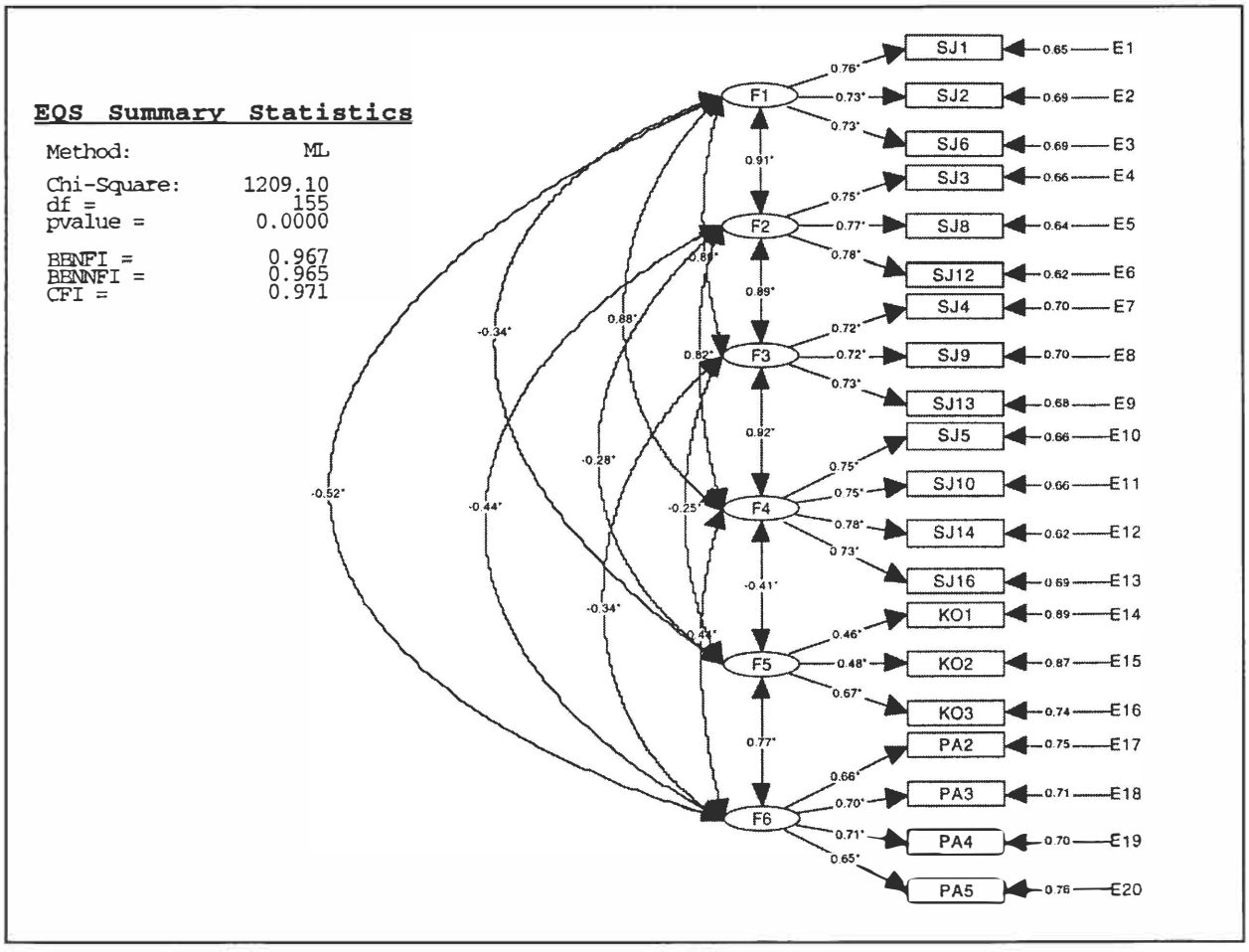


Figure 24. The six-factor model of leadership behavior.

Three competing models were tested to see which factor structure solution best represented the theoretical model underlying the DLQ. The competiting models included:

1. A three-factor model: DL, CL and PL.
2. A four-factor model: 2 DL factors (BT/IM and IC/IS), CL and PL.
3. A six-factor model: 4 DL factors (BT, IM, IS, IC), CL and PL.

Each CFA was based on the maximum likelihood estimation method. Maximum likelihood (ML) method can be shown to be equivalent to the method of reweighted least squares (RLS) in the case of multivariate normality (Dunn et al 1993, 40), especially when the residuals are normally distributed (Pedhazur 1982, 639). In Figure 24 is shown the pictorial presentation of the six-factor model of leadership behavior, which is the basic structure of the behavioral factors in the DLM.

COMPARISON OF THREE LEADERSHIP BEHAVIORAL MODELS			
Fit Measure	*Three-Factor Model*	*Four-Factor Model*	*Six-Factor Model*
Chi-Square/df	2455/167	1771/164	1209/155
BBNFI	0,93	0,95	0,97
BBNNFI	0,93	0,95	0,96
CFI	0,94	0,96	0,97
Note: CFI = Comparative Fit Index, BBNFI = Bentler-Bonett Normed Fit Index, BBNNFI = Bentler-Bonett Nonnormed Fit Index (P-value 0.000)			

Table 12. Goodness-of-fit statistics of different behavioral factor structures

Referring to the previous research reviewed in the chapter 6, I supposed that the first, three-factor model would be a very competitive one, having already a reasonably good fit. The challenge for the six-factor model is to even improve the fit and through this result to confirm, that it is possible (and from the leadership training point of view also truely necessary) to approach deep leadership via four intercorrelated factors. The comparison of these competitive models is shown in Table 12.

All of the fit measures as well as the chi-square tests improved as the solution progressed. As shown in Table 12, the Comparative Fit Index (CFI) for the six-factor solution was .97, exceeding clearly the .90 cut-off criterion recommended in the literature. All items loading on each factor were significant, demonstrating that each of these respective factors has satisfactory levels of internal consistency. Again, a probability value of 0.000 suggests that the hypothesized path model is not entirely adequate. As mentioned, several researches

have recognized the problems in using the chi-square test with large sample sizes and have recommended using other goodness of fit measures such as GFI, BBNFI and CFI.

Finally, let´s review the results. On the basis of previous research, it was obvious that the three-factor model for leadership behavior would be a competitive one. To test the hypothesis set for this analysis, the comparison between three-factor model and six-factor model is my primary interest. Turning to to the overall goodness of fit, we see statistically significant drop in the overall chi-square value (2455 -> 1209) and due to this also better relation between chi-square and respective degrees of freedom. In support of this relevant improvement in model fit is the change of the CFI value (.94 -> .97). In view of the fact that approximately 97% of the covariation in the data has already been explained, I would consider the third (six-factor) model to be the best (and also otherwise acceptable) structure of leadership behavior.

9.4 The structure of the DLM

Confirmatory factor models are often used in the social and behavioral sciences (Dunn et al 1993, 75). Such models specify a particular factor structure for a set of observed variables by postulating which of the variables are indicators of which factors. Additionally, correlations between some or all of the factors may be allowed, and, where appropriate, particular pairs of error terms may be free to have non-zero covariances. Such models are easy to apply using EQS.

To facilitate interpretation, the model was labeled both generically and in terms of EQS notation. However, clarification is needed regarding the labeling of observed dimensions and assumed paths in the calculated model (Byrne 1994). In this analysis the corrective/controlling leadership dimension (CL) and the passive leadership dimension (PL) were dropped because the correlations to outcomes were predicted to be zero. The direct path of causality between the potential of a leader and the leadership outcomes was not seen necessary.

To simplify the structural model, only the leading observed variables for each dimensions were attached to these higher order factors. It was also assumed that each observed variable loads on one and only one factor and this was tested in preliminary analysis.

HYPOTHESIS 2

Deep Leadership Model is a three second-order factor structure

Referring to Figure 25, there is no hypothesized covariance between F1 and D2 or F2 and D3; absence of this path addresses the usual and most often necessary assumption that the independent or predictor variable is in no way associated with any error arising from the prediction of the dependent or criterion variable.

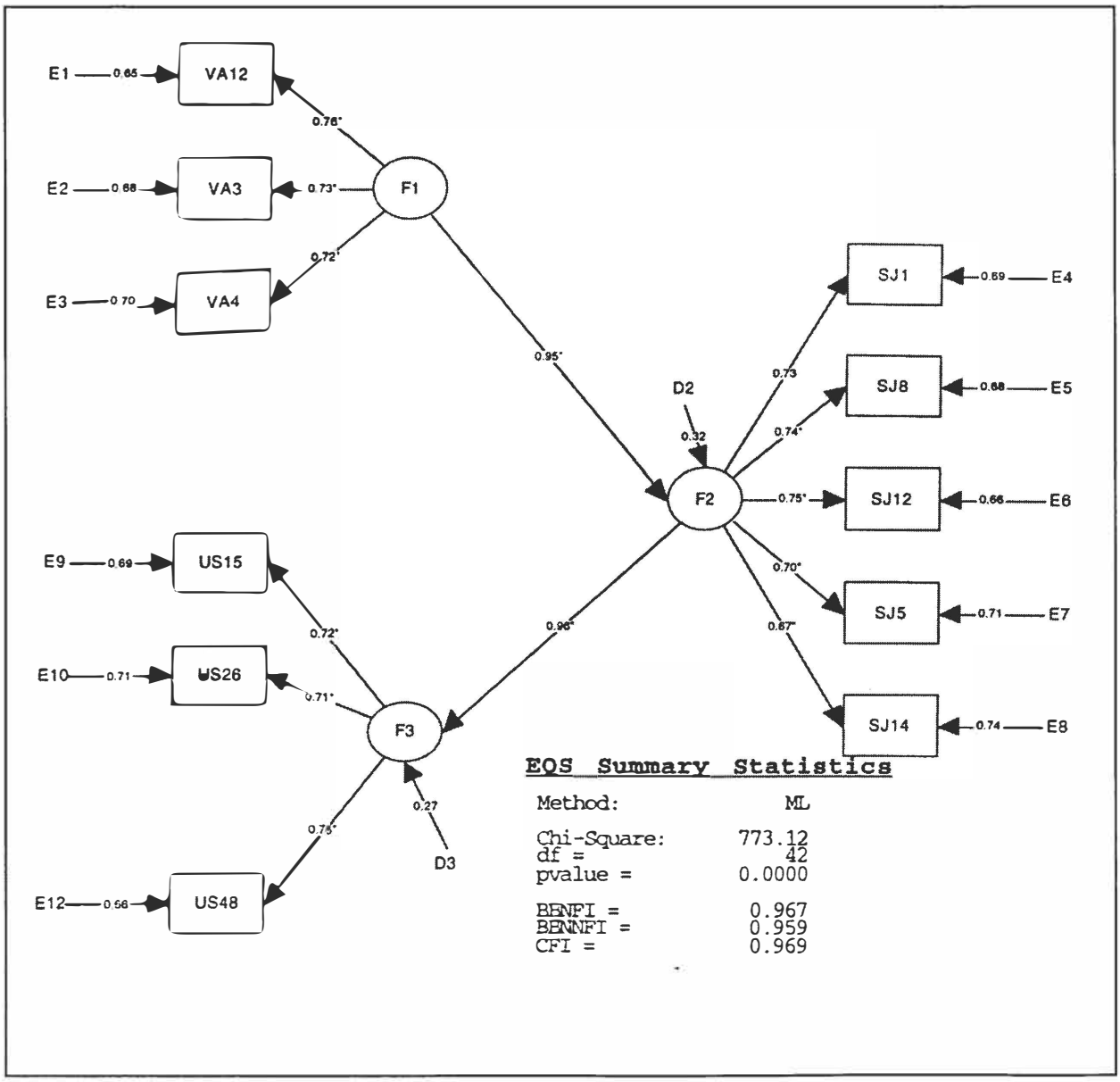


Figure 25. CFA of the DLM.

Representing the three second-order factor model of deep leadership, we can discern 11 observed variables, three factors (F1 - F3) and 22 regression coefficients (<---), 11 leading from the Fs to the Vs and 11 indicating the impact of random measurement error on the Vs. In Bentler and Weeks´s terms, then, we have 11 dependent variables and 22 independent variables.

As noted earlier, these constitute the variances and covariances of the observed variables; with *n* variables, there are *n(n+1)/2* such elements. Because there are 11 observed variables, we have 11(11+1)/2 = 66 data points. Accordingly, we have 22 regression coefficients and 2 error (D) variances, yielding a total of 24 unknown parameters. Thus, with 66 data points and 24 parameters to be estimated, we have an overidentified model with 42 degrees of freedom.

EQS provides a goodness-of-fit summary for the model, together with details of the iterations required to fit the model to the data. The central goodness-of-fit statistics are shown in figure 25. The CHI-SQUARE is 773.12. The associated *p*-value is again .0000. The three respective fit indicis are .967 (NFI), .959 (NNFI) and .969 (CFI). Each of these is based on the value of the fitting function for the current model. The NNFI has the advantage of reflecting model fit very well at all sample sizes. Considering the confirmatory factor analysis of leadership behavior factors and the structure of the DLM, it is concluded that the model as well as the respective questionnaire are consistent with the data in an acceptable level. *With these results I can not argue that the DLM would be the best possible model for leadership behavior; what I can argue is that the DLM is good enough for the purposes it has been developed.*

9.5 Reliability

The primary purpose of the current study was to examine the factor structure of the DLQ and the structure of the DLM. The results of confirmatory factor analysis confirmed the hypothesis set for the model. In order to study more closely the reliability and validity of the DLQ as a feedback tool and the DLM as a model, I will refer here also to some other recent studies, in which the current version of the DLQ (version 8a99) has been used.

The analysis of reliability will be based on four independent samples, as shown in Table 13. *Sample 1* is the data of this study. As a part of the training effectiveness evaluation process in the National Defence College, the data in the *Sample 2* was collected in

september 2000. The leaders in this sample represent young first lieutenants, who are serving as conscript instructors and company DCO´s in the army. During the autumn 2000, all the conscript squad leaders were evaluated in Savo Brigade as a normal routine of the new leadership training program, representing here *Sample 3*. Finally, *Sample 4* represents the data base of the master´s thesis of Kujala (2000) to the University of Helsinki. Kujala studied leadership in a civilian marketing organization, and the data in her sample represent the middle-level leaders in that organization.

DLQ Alpha Reliability Coefficients (Version 8a99)				
Sample	1.	2.	3.	4.
Data Collector / Year	Current data 1999	NDC 2000	Savo Brigade 2000	Kujala 2000
Sample size / leaders	4189 241	496 31	3024 256	303 57
PO Factor	.90	.88	.90	.93
BT Factor	.78	.76	.84	.86
IM Factor	.81	.77	.82	.86
IS Factor	.76	.79	.77	.90
IC Factor	.84	.83	.81	.89
CL Factor	.55	.63	.66	.69
PL Factor	.77	.79	.80	.85
EF Factor	.73	.79	.82	.85
SA Factor	.84	.85	.84	.92
EE Factor	.86	.84	.83	.91

Table 13. Four independent samples Alpha reliability coefficients.

As shown in table 13, the reliability coefficients are clearly higher in the data analyzed by Kujala (2000) than in the other samples, in which they are only fairly good. *What is the difference?* The explanation is quite simple. In this first three samples, the reliability coefficients have been calculated from the basic data, in which every single evaluation is a case. On the contrary, in the study of Kujala, the reliability coefficients have been calculated from the categorized data, in which single evaluations are combined in personal level to leadership profiles, and these profiles are the cases.

Because the DLQ is a tool created to form up leadership profiles, the reliability coefficients produced by Kujala can be interpreted to be most relevant. *Why are the other samples not analyzed similarly?* The DLQ in the field is supported by a simple RDAS program. From this program, used to formulate the leadership profiles rapidly in the field, it is possible to convert the data to more sophisticated statistical programs as profiles, but the raw data matrix will be lost in this case. Thus, it is possible to run reliability coefficients by using the individual profiles in large samples.

In my sample, the Alpha reliability coefficients for deep leadership dimension (Deepltot) and leadership outcomes (Outcotot) were .95 and .93, respectively, as shown in the Appendix F (see also the frequencies in Appendix C, page 6). Still, as a task for further research and development of the DLQ, there is a need to enhance the reliability of the controlling and corrective leadership (CL) factor. This will be done by reexamining the corresponding single items psychometrically in order to enhance their intercorrelation.

9.6 Validity

The preponderance of behavioral research on leadership primarily has used graphic rating formats (like in this study) to evaluate leadership behavior, even though such investigations based on graphic ratings frequently produce artificially high intercorrelations among the scales measuring conceptually independent leadership factors. In other words, graphic rating scales have been shown to be more prone to halo effect than ranking procedures (Bass and Avolio 1989, 510). This methodological problem can be discussed generally as *method bias issue:* concerning the DLQ, one could say that all the criteria are based on attitudinal perceptual evaluations, and the general positive/negative attitude of the evaluator will permeate all the analysis.

In the chapter 10, I will report the analysis of individual leadership profiles. These profiles show in the level of an individual leader, that the method bias issue is not a serious threath to the validity of the DLQ. First of all, the basic nature of the DLQ as a feedback tool is to make the individual leader to be more aware how all the other people see him/her as a leader, not to determine exact results or effectiveness. Providing feedback to leaders about how they are viewed by direct subordinates, peers and superior should prompt behavior change through more accurate self-perception. When anonymous feedback solicited from others is compared with the leader´s self-evaluations, the leader may form a more realistic picture of his or her strengths and weaknesses.

		Paired Differences Extracted from the Profiles (N=241)							
	Corr.		Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. 2-tail
Pair		Mean			Lower	Upper			
EFFECTIVENESS SATISFACTION	.795	-.226	.433	.003	-.281	-.171	-8.12	240	.000

Table 14. Paired samples T-test between EF and SA factors

The profiles show also that the evaluators (who are mainly 19 - 20 years old privates in behind these leadership profiles) are capable to go beyond their general attitudes and to distinguish between the different behavioral aspects. For example, 25 % of the officers in the sample are evaluated to be highly potential and skillful leaders (the value of the first factor (PO) is higher than 3.00), but the respective values of intellectual stimulation (IS) and individualized consideration (IC) are remarkably lower (generally in between 2.00 - 2.50). Same kind of difference can be seen also when analysing the outcome factors (effectiveness, satisfaction and extra effort): typically, there is significant difference between the value of evaluated effectiveness and overall satisfaction (see Table 14), although the intercorrelation is relatively high (.795).

The conclusion is that the halo effect does exist in some extent, but it is not threathening the overall validity of the DLQ. If the DLQ or a behavioral meter alike is to be used for a purpose another than personal development (organizational evaluation, measurement and rewarding) it should be noticed that there are some risks. Research has demonstrated that when ratings become evaluative rather than purely developmental, some raters (up to 35 %) change their ratings (Waldman et al 1998, 88). A rating should be used for appraisal purposes only when the raters are truely committed to the goals of the organization. Further on, it is warmly recommended that for leader´s performance appraisal, the measurement should be done by using several different criteria, covering both “hard” and “soft” results. As a part of such united criteria, with a reasonable (several years) time for people to learn to get used to the 360 degrees feedback system, the DLQ is a relevant tool.

The main evidence for the *content validity* in this study is that I was able to confirm the hypotheses set for the DLQ and DLM. Confirmatory factor analysis shows, that the single items are defining examples of the factors. Actually, this test is being carried out in every single training session starting with a method I call “unraveling the personal leadership experiences”. In this implicit (Bass 1998, 104) method, participants are asked to think of a leader in their past or present, who has had a profound effect or influence on their performance or development. In a plenary session, the attributes and behaviors presented by participants are combined by the trainer into five clusters without any identification of the clusters as such. What slowly emerges is that each cluster is one of the five factors (PO, BT, IM, IS, IC) of the DLM. Practically all of the behaviors collect in the deep leadership clusters, only a few in the professional skills.

In my sample the leadership profiles were formulated using only subordinate ratings. As well, the sample does not include any individual bibliographical (background) data. The main reason for this arrangement is that through this kind of procedure I was able to quarantee the anonymity for every respondent and evaluated leader without being personally present. Through this sample I am not able to compare the different sources of feedback, which can be seen to be a negative issue concidering the overall validity.

The conclusion is reached that the collective image of an ideal leader, which is linked to one´s implicit theory of leadership, is mainly that of deep leadership. In fact, this is the core issue in the metascience of the new paradigm of leadership, i.e. the universal nature of the phenomenon of excellent leadership behavior (Bass, 1997). The behaviors in the DLM are therefore assumed to be generally relevant for effective leadership, not only in the military environment.

Internal consistency is the degree of intercorrelation among the items in a factor, as well as the intercorrelation among the factors in a dimension. A high value means that leaders tend to use the behaviors defining a scale to the same extent. High internal consistency is evidence that the scale is measuring a category of interrelated behaviors. It is reasonable to expect that an item will correlate more with the items in its own category than with items in other categories. This condition is unlike to occur unless the items in a factor have at least moderate internal consistency.

The main statistical sources for conclusions about internal consistency are shown in Table 13 (Alpha reliability coefficients), Table 11 (Factor correlations) and in Appendix D (Single item Pearson correlations). The low Alpha value for CL factor (.69) is obvious when studying the intercorrelations between respective items, which vary in between .25 to .35. There is a need to improve the DLQ concerning this factor, as noticed earlier. Otherwise the internal consistency of factors and the whole model is quite high.

In the context of this study, *the criterion-related validity* is perhaps the most important dimension of the overall validity of the DLM and DLQ. Through the data analyzed in this chapter it is difficult to make any conclusions concidering this aspect. However, the enlarging research in the era of military leadership behavior in the FDF has already produced research in which the DLQ has been used. In the following paragraphs I will shortly review a study by Ville-Veikko Vuorio (2001).

Vuorio has done a comparative study, the object of which were 54 ground force training companies and respondents included the regular personnel, commanders and their superiors of the companies in question. The study is important and the first of its kind in the FDF, because alongside the DLQ, other, independent outcome criteria, i.e. quality and training results, were used. In his study, Vuorio measures the activities and efficiency of a company with three independent meters:

1. **Leadership profiles** have been produced for company commanders using the deep leadership questionnaire and the principles of full range feedback. Version 8A99 of the DLQ has six behavioral factors, of which four measure deep leadership, one controlling/corrective leadership and one passive leadership.
2. Using group work, the entire regular personnel of the company has done a **quality evaluation** of the company using a form that is based on the evaluation items of the quality criteria of a company. The meter in question is an application drawn up by the researcher of the general criteria of quality activities and their weighting coefficients.
3. The third evaluation criterion is an evaluation of the **productivity of training** drawn up by the commander that is primarily based on "hard" meters like the follow-up results of training and the final inspections of produced war time troops.

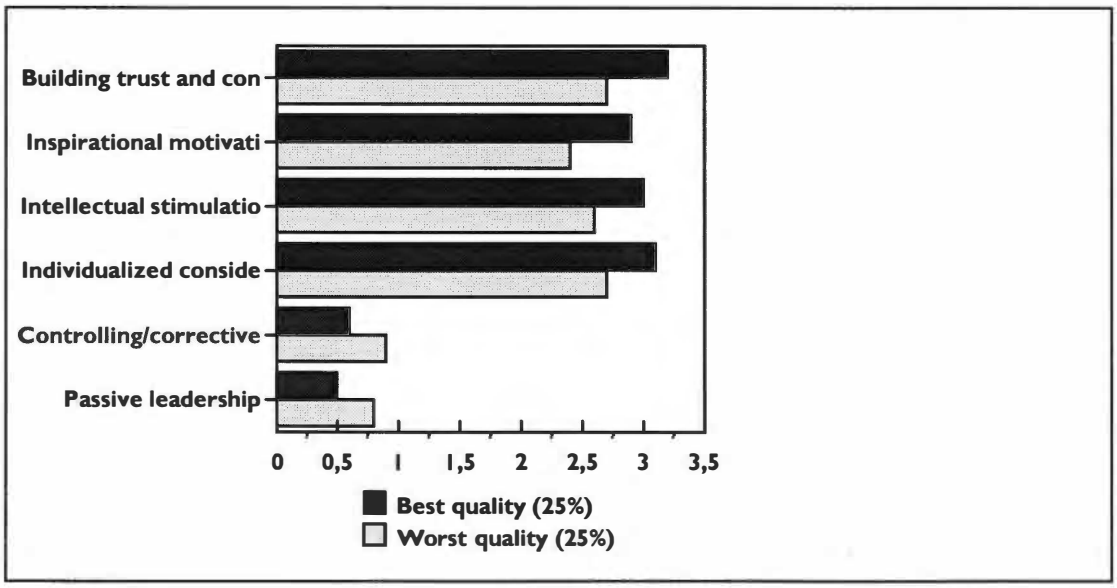


Figure 26. Comparison of company commanders´ leadership profiles behavioral factors in the army training companies ranked by quality criteria (Vuorio 2001, 68).

Vuorio uses the comparison of extremes (25% from each end) in studying whether there are significant differences in the leadership profiles of company commanders of companies ranked according to quality and training result criteria (see Figures 26 and 27). Comparison of company commanders´ leadership profiles behavioral factors in the army training companies ranked by quality criteria are shown in Figure 26. Respectively, comparison of company commanders´ leadership profiles behavioral factors in the army training companies ranked by measured training results are shown in Figure 27.

Statistically the results of Vuorio's study are clear. Whether evaluation is based on quality evaluation or training results, in the leadership profiles of the best and worst companies there is a statistically very significant difference in all factors of deep leadership. Beyond this result, with the quality criteria, statistically significant differences were found also in the dimensions of controlling and corrective leadership as well as passive leadership. The results of Vuorio's study can be generalized to be applicable to the entire ground forces in the FDF: *the leadership behavior and especially deep leadership profile of a company commander seems to have a significant, positive connection to the quality and productivity of the entire company.*

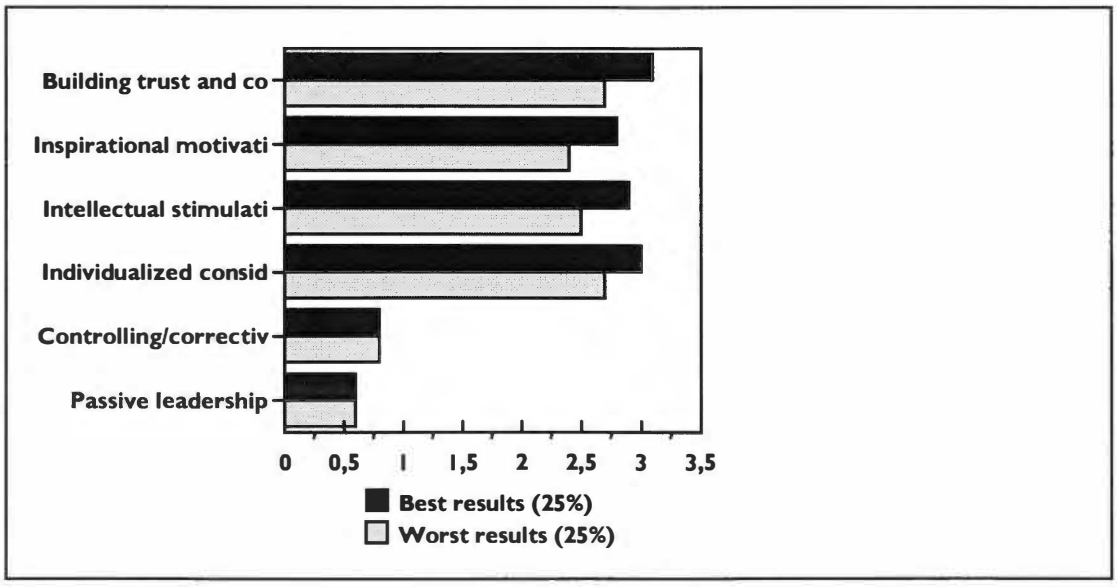


Figure 27. Comparison of company commanders´ leadership profiles behavioral factors in the army training companies ranked by measured training results (Vuorio 2001, 68).

The result of Vuorio's study raises almost automatically further questions, like: *What sort of difference would be noted in quality and training results if not only the commander, but the entire personnel of the company, acted according to the principles of deep leadership?*

How strongly can the commander with his leadership behavior actually influence the leadership behavior of his instructors and conscript leaders?

Because of the high internal validity and consistency reported above, my original sample was not split for the comparative factor analysis. It is a relevant task for further research to study the validity and reliability of the DLM and the DLQ with new samples from different kind of environments. On the other hand, there are many restrictions to the use of the DLM. The main restriction concerns the generality of the model. For instance, adapting it to the Finnish language and military context may limit the possible use of the model and the questionnaire.

Compared with the FRL and MLQ reexamined by Bass, Avolio and Jung (1998), the DLM and DLQ are both more complex and more simple. In higher order factors, the DLM is more complex because of the third independent dimension, which is potential, represented in the DLQ by PO-factor (professional skills). Therefore the structural equation model is more complex. DLQ is more simple than MLQ when considering the factors in leadership behavior dimension. The main difference is in the transactional dimension: the DLM covers this area with only one factor (corrective and controlling leadership), while Bass, Avolio and Jung (1998) recommend at least two factors (contingent reward and management-by-expectation).

It is mainly the problematic contingent reward (CR) factor that is missing in the DLM. In the DLM, the emotional rewards form a integral part of the deep leadership factors. The materialistic rewards are not included in the DLM, because this questionnaire has been addressed to military leaders preparing for a battlefield environment. In real life, there are no effective and official materialistic rewards military leaders (especially at low levels) could use.

The question about the leadership behavior factors is not only theoretical; on the contrary, for effective leadership training it is vital that we are able to go beyond the surface and find out as detailed developmental aspects as possible. A distinction between the different components of transformational leadership remains very important, particularly for training purposes (Den Hartog et al, 1997). This is the main focus of the DLM and DLQ: to support learning for leadership in all levels.

10. LEADERSHIP PROFILES

For the analysis of individual leadership profiles, data were saved so that each case is an individual leadership profile. The total number of leadership profiles is 241, including 99 squad leaders (conscripts), 62 platoon commanders (conscripts) and 80 platoon instructors (officers and warrant officers). In the paragraph 10.1 I will analyze the differences of the three main groups of military leaders (squad leaders vs. platoon commanders vs platoon instructors) in order to find out the possible effects of education and personal experience. In the paragraph 10.2 the group differences will be ignored and the cluster analysis will be done with all the 241 profiles in order to find whether there are general types of leaders.

10.1 Group profile averages

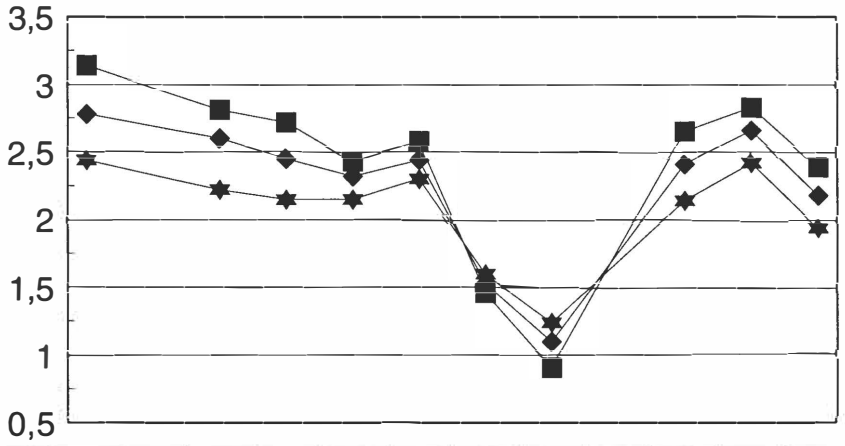
The profiles are almost alike when the differences in level are ignored. Instructors have higher profiles than platoon commanders, who have higher profiles than squad leaders. What makes the difference? First of all, in between each of these groups, there is a selection process. In the Finnish training system, about 30% of all the conscripts are selected to be leaders. After the first training period (eight weeks) in the schools for squad leaders, about 30% of them are selected to be platoon commanders. Further on, about 3% of all these leaders trained for the reserve troops are selected[1] to be vacant officers or warrant officers.

Secondly, the total training period of platoon commanders (21 weeks) is longer than the training period of squad leaders (16 weeks). Beyond these periods, the training of warrant officers has been two and a half years and the training of officers four years. Thirdly, especially between all officers and conscript leaders, there is a certain difference in the overall life experience what so ever.

For the reasons mentioned above, the comparison of profiles suggests that *leadership selection processes, education, training and experience are factors which have been developing military leadership towards the principles of deep leadership*. It should be reminded that when this data (the profiles) were collected, the new leadership training program with the idea of deep leadership was not effective. This is a relevant observation, because it practically means that there is no need to radically change the military culture

[1] Beginning at year 2001, the Finnish training system of vacant personnel has been renewed in order to create one flexible and united training and education system for all the officers.

with the new leadership training program, merely to enhance the positive trend towards the cornerstones of deep leadership.



	PO		BT	IM	IS	IC	CC	PA		EF	SA	EE
INSTRUCTOR ■	3,14		2,81	2,72	2,43	2,58	1,46	0,91		2,65	2,83	2,39
PL.COMM ◆	2,78		2,60	2,45	2,32	2,44	1,53	1,10		2,41	2,66	2,18
SQ.LEAD ✸	2,44		2,22	2,15	2,15	2,30	1,60	1,24		2,14	2,42	1,94

* Correlations between group profiles 0.97 - 0.99

Figure 28. The leadership profiles of leaders in the three lowest levels of the military.

On the other hand, when studying the individual profiles case by case, one can find at every level both very high and very low profiles. The average of profiles is therefore more like a tendency than a feasible approximation, because the variation in individual profiles is quite large.

In average, professional skills (PO) is the strongest factor for military leaders at these levels. This is a sign of effective skills-oriented training.

Building trust and confidence (BT), Inspirational motivation (IM), Intellectual stimulation (IS) and Individualized consideration (IC) are the four deep leadership factors. The first two factors together (BT and IM) can be seen as a feedback for a leader concerning the question *"how do I lead the whole group/platoon?"*. Respectively, the other two factors (IS and IC) answer for the question *"how do I lead the individual soldier?"*.

Generally, concerning the platoon instructors and commanders, they are stronger in leading the whole platoon than individuals. On the contrary, concerning the squad leaders,

the strongest factor on average is individualized consideration. This result is reasonable, beginning from the simpliest explanation which is the number of subordinates. Thus, there are many individual profiles among all three groups in which the relationship between deep leadership factors is somewhat different than this average. Eventually, this is a fact that makes this analysis so interesting and fascinating.

Overall, intellectual stimulation (IS) seems to be the factor that needs to be enhanced the most in military leadership. Here we must consider that the data (feedback) used in this sample are based on the experiences of the first two months of service in the army (basic military training). This is the phase when the basic skills are learned, so the training context is not favoring a strong emphasis on intellectual stimulation. Further on, this a true challenge for all the military leaders and instructors creating effective war-time units: when the training after the basic period continues, there must be a conscious and outspelled effort using more and more intellectual stimulation in order to create self-initiative, motivation and commitment to the tasks.

Controlling and corrective leadership (CL) is a transactional factor in the DLM. When analysing the respective items loading on this factor, one can find out that the general “mode” is quite negative, because the items emphasize lack of trust, strong control and punishment “by the book”. It is a basic assumption that leaders need also transactional leadership (in a proper amount) to be effective. Thus, it should be borne in mind that in the DLQ, the CL factor is reflecting merely “negative” transactional behaviors. Therefore the level of CL factor in a effective profile should be quite low. In the data this is the case, because the level of CL factor in between the groups varies from 1.60 to 1.46. Further on, in the context of cluster analysis, the results actually confirm the assumption that transformational and “negative” transactional behaviors complement each other: the higher is the level of deep leadership factors, the lower is the level of controlling and corrective leadership and vice versa.

Passive leadership (PL) is a non-leadership factor. There are not many options on how to interprete this factor: in a effective profile, it should be as low as possible. Thus, in my sample there is only one profile with a zero value in this factor. In a context of deep leadership this reminds us that the perfect leader does not exist in everyday life. Even if we try our hardest, in a case of hurry, exhaustion or human mistake, we behave as leaders in a way that seems to be passive (observed problems in decision-making,

avoiding personal responsibility, not being there when needed) in the eyes of subordinates.

Effectiveness (EF), satisfaction (SA) and extra effort (EE) are outcome factors. Their primary task in the DLQ is to enable the preliminary reflection process of a leader. Thus, the halo-efect does exist. If a reliable measurement of overall effectiveness is needed, some other results-oriented criteria should be used for that purpose. As confirmed in the chapter 9, there is a causal path between professional skills, leadership behavior and outcomes. It is not surprising that outcome factors correlate highly with professional skills and deep leadership factors, as shown in table 11.

In all the groups, the satisfaction (SA) factor seems to have the highest values, followed by effectiveness (EF) and extra effort (EE). The causal connections between behaviors and outcomes will be analyzed using regression analysis in the next paragraph. In this stage, the most challenging outcome factor (reflecting genuine commitment to the tasks at hand) seems to be the extra effort (EE) factor.

10.2 Cluster analysis

A cluster analysis was performed to identify different types of leaders. The individual profiles constitute a cluster insofar as they are alike with respect to characteristics relevant to the factors and dimensions of professional skills (PO), deep leadership as a single dimension (DL), corrective and controlling leadership (CL), passive leadership (PL) and perceived outcomes as a single dimension (OC). Several cluster solutions were tested and analyzed. The five-cluster solutions gives the best basis for interpretation and conclusions.

To make the cluster analysis less complex and more interpretable, the four intercorrelated deep leadership factors were combined to form one deep leadership dimension (DL). The same procedure was executed with the three outcome factors, which were combined to form one outcome dimension (OC). This simplification was done only to reduce the number of factors in the cluster analysis: when I move on to the individual profiles, the original ten factor structure will be basis for the comparative analysis. The results as shown in Figure 29 are quite revealing, when going back to basic assumptions concerning the relationship between transactional and transformational leadership. The cluster analysis cell means and analysis of variance are shown in Appendix H.

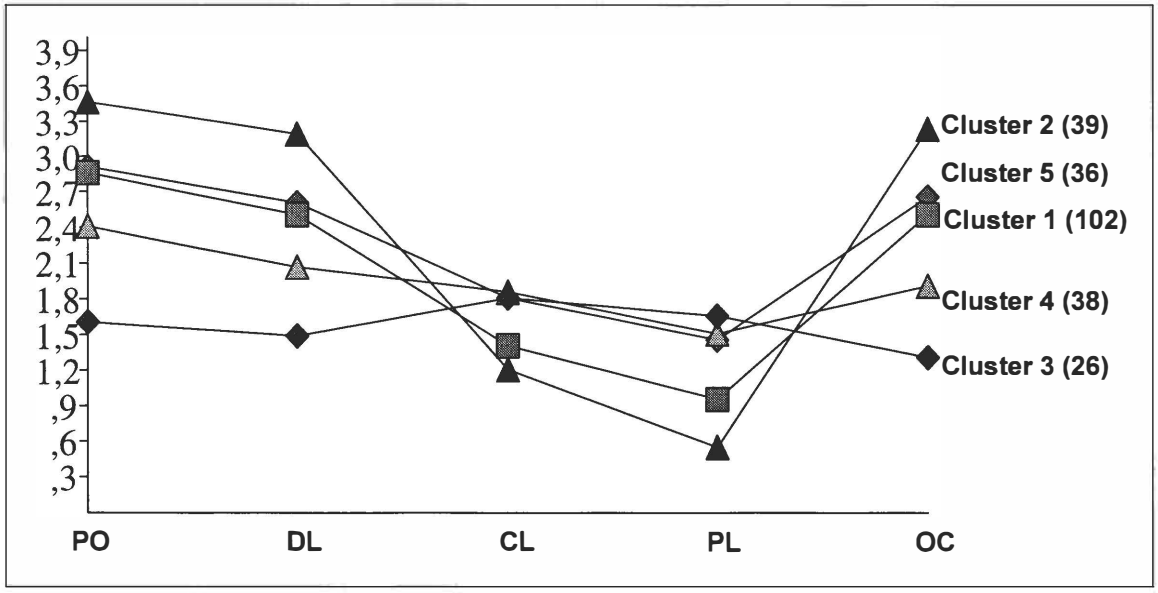


Figure 29. Cluster analysis of leadership profiles: five types of leaders.

Cluster 2 (N=39) consists of leaders who have an outstanding leadership profile. The average of their professional skills is 3.47. The average of deep leadership dimension is 3.14. The levels of CL and PL factors are 1.16 and 0.55. Finally, the value of total outcomes (OC) is 3.21. This is the cluster of truly "deep leaders". The leaders in this cluster represent all the three groups (5 squad leaders, 12 platoon commanders and 22 instructors). There are altogether 17 young conscript leaders in this cluster. These young leaders have "the talent" for leadership: these results show again that some of us (actually very few, according to this sample about 3 % of the whole age group) are "born" leaders.

Cluster 5 (N=36) consists of leaders who have a good leadership profile. The average of their professional skills (PO) is 2.90. The average of deep leadership dimension is 2.61. The levels of CL and PL factors are 1.81 and 1.44. Finally, the value of total outcomes (OC) is 2.64. This is the cluster of "good, controlling and occasionally passive leaders". The leaders in this cluster represent all the three groups (7 squad leaders, 17 platoon commanders and 12 instructors). The most of the leaders in this cluster are young conscript leaders.

The possible interpretation for this kind of profile is that these young leaders may have very active instructors, who are not giving enough "space" or freedom of action to the conscript leaders, who would be even deep leaders in some other environment. When the platoon instructor is around, the conscript leaders have to stay quite passive. When the platoon instructor is absent, he demands that the conscript leaders actively control the squad or the platoon.

Cluster 1 (N=102) consists of leaders who have as good leadership profile as the leaders in Cluster 2. The average of their professional skills is 2.84. The average of deep leadership dimension is 2.50. The levels of CL and PL factors are 1.38 and 0.94. Finally, the value of total outcomes (OC) is 2.48. This is the cluster of "good, less controlling but fairly active leaders". The leaders in this cluster represent all three groups (44 squad leaders, 22 platoon commanders and 36 instructors). This is the most typical cluster for all the leaders in this sample. When compared to the leaders in Cluster 5, the difference is in the level of CL and PL factors. Leaders in Cluster 1 are not controlling as strongly as leaders in Cluster 5, but they are also seen to be seldomly passive. As an assumption I would say, that the leaders in Cluster 1 act more like they are "one of the gang" than the leaders in Cluster 5, who are not feeling so comfortable being with subordinates all the time. Nevertheless, the level of total outcomes is nearly the same.

Cluster 4 (N=38) consists of leaders who have a poor leadership profile. The average of their professional skills is 2.39. The average of deep leadership dimension is 2.05. The levels of CL and PL factors are 1.85 and 1.47. Finally, the value of total outcomes (OC) is 1.89. This is the cluster of "weak leaders". The leaders in this cluster represent all the three groups (20 squad leaders, 9 platoon commanders and 9 instructors). Most of the leaders in this cluster are young conscript leaders. These leaders have already leadership problems, and the outcomes are quite poor. They certainly have some developmental needs. Still, the average of deep leadership dimension is higher than CL or PL factors.

Cluster 3 (N=26) consists of leaders who have a non-leadership profile. The average of their professional skills is 1.59. The average of deep leadership dimension is 1.46. The levels of CL and PL factors are 1.84 and 1.65. The value of total outcomes (OC) is 1.30. This is the cluster of "non-leaders". The leaders in this cluster represent mostly squad leaders (23 squad leaders, 2 platoon commanders and 1 instructor). Leadership behavior in this cluster is not even near what is required for effectiveness. It is noted that the number of squad leaders in this cluster should be analyzed as a general validity indicator of the selection process of conscript leaders. Further on, the DLQ can also provide a powerful tool for validity research to develop the selection process for military leaders. Table 15 shows how the three groups of leaders are represented in these five clusters.

Leaders in clusters						
LEADER LEVEL	Cluster 2 N = 39	Cluster 5 N = 36	Cluster 1 N = 102	Cluster 4 N = 38	Cluster 3 N = 26	Note
Squad leader	5 5 %	7 7%	44 44%	20 20%	23 23%	Enlisted
Platoon comm.	12 20%	17 27%	22 35%	9 15%	2 3%	Enlisted
Platoon instructor	22 28%	12 15%	36 45%	9 11%	1 1%	Officers NCO´s

Table 15. Leaders in cluster analysis

Some preliminary conclusions can be drawn out of this cluster analysis. Professional skills seems to be the basis for effective leadership behavior. On the other hand, it should be understood that professional skills cannot replace leadership behavior when outstanding outcomes are pursued in the path analysis. If the results are to be made with other people, leadership behavior is the vital element in between the leader´s professional skills and pursued outcomes or results. In other words, professional skills of the leader are simply not enough, if the effectiveness of the whole group is evaluated. I will analyze this assumption in the next paragraph through regression analysis.

The relationship between the deep leadership dimension and the other less effective leadership factors is ambiguous: the higher the deep leadership dimension, the less the controlling and corrective (CL) or passive (PL) leadership are needed, and vice versa. In between these extreme profiles we seem to have an area where the same outcome can be reached with somewhat lower or higher CL and PL factors. The total outcomes (OC) correlate highly (r=.96) with the the deep leadership dimension (DL).

Although the correlations between outcomes (OC) and corrective/controlling leadership (CL) and passive leadership (PL) are negative (-.18 and -.39, respectively), the interpretation of profiles can not be done in a linear way concerning these dimensions, as the difference between Clusters 5 and 1 indicates. Therefore it is necessary and also interesting to study more closely the individual profiles with other means.

In a preliminary study, neural networks in Matlab program has been used for more profound analysis of the leadership profiles and the limit values of clusters in different solutions. According to these preliminary results (see Appendix M), the clusters shown in Figure 29 offer a satisfactory basis for further analysis.

10.3 Regression analysis

In many real-life situations more than one variable is used to predict a criterion. The prediction of a criterion using two or more predictor variables is actually called multiple regression. The statistical procedure weighs each predictor so that the predictor variables in combination give the optimal prediction of the criterion.

In confirmatory factor analysis, the correlation in the path model between deep leadership (DL) dimension and outcomes (OC) dimension was .96. Thus, when studying the individual profiles, there are lot of individual differences also among deep leadership factors. The impacts of deep leadership factors to the outcome factors can be studied using regression analysis. In Tables 16 and 17 I show the results of regression analyses where the three outcome factors (one at a time) were set as dependent (predicted) factor. In every analysis (Models 1, 2 and 3), the independent factors were the four deep leadership factors, CL factor and PL factor. The total analysis covers three different regression models.

Model **depen-dent**	R	R Squa re	Adj. R Squa re	Std. Error of the Estim ate	ANOVA	Sum of Squa res	df	Mea n Squ are	F	Sig.
1 EF factor	.926	.858	.855	.219	Regression Residual Total	64.7 10.7 75.5	6 234 240	10.8	236	.000
2 SA factor	.893	.797	.792	.325	Regression Residual Total	97.4 24.7 122	6 234 240	16.2	154	.000
3 EE factor	.919	.844	.840	.264	Regression Residual Total	87.7 16.3 104	6 234 240	14.6	210	.000

Table 16. Regression Model Summary and ANOVA, predictors (constant): BT factor, IM factor, IS factor, IC factor, CL factor, PL factor

The results of regression analysis are very interesting. As seen, there are strong intercorrelations between the four deep leadership and the three outcome factors. The factor correlations are shown in Table 11. Actually, if we look at the correlations that professional skills (PO) has with deep leadership and outcome factors, they are almost identical. *This could be a sign of limited discriminant validity*. But, according to the results of regression analysis, the behavioral factors seem to have specific, unique functions concerning the outcomes.

Model Coefficients	Models (dependent variable)					
	Model 1 **(EF factor)**		Model 2 **(SA factor)**		Model 3 **(EE factor)**	
	Beta	*Sig.*	*Beta*	*Sig.*	*Beta*	*Sig.*
BT factor	.194	.004	.094	.238	.281	.000
IM factor	.552	.000	.076	.296	.360	.000
IS factor	.054	.395	.144	.060	.087	.193
IC factor	.155	.004	.558	.000	.280	.000
CL factor	.073	.049	-.067	.133	-.061	.117
PL factor	-.078	.051	-.034	.474	.103	.015

Table 17. Regression Model Coefficients, comparison of three models

In this context, the primary purpose of the regression analysis is not the prediction or the validition of the model in such. **The main interest is to analyze the internal structure of the model e.g. the causal connections between behavioral and outcome factors:** this is the reason why I have in the first place obviously unnecessary independent variables in the basic regression analysis. This information is very useful when we look for learning how to interpretate the individual leadership profiles. However, the linear regression analysis presented in the following text was supported with more profound tests concerning various combinations with independent factors, residual statistics and analysis of variance and coding coefficients. The results of these tests are shown in Appendixes J, K and L.

In **Model 1** the dependent variable is effectiveness (EF) factor. Effectiveness can be predicted mainly by inspirational motivation (Beta = .552). Building trust and confidence (Beta = .194) and individualized consideration (Beta = .155) predict effectiveness slightly. Controlling and corrective leadership (Beta = .073) exceeds intellectual stimulation (Beta = .054) as predictor. Passive leadership has negative value (Beta = -.078). When studying the various combinations of independent variables (see Appendix K and L), it is obvious that inspirational motivation (supported by building trust and confidence) is crucial if we are looking for effectiveness in organizations. The scatterplot of standardized predicted values and standardized residuals (see Appendix J) with t-test suggest that the model is not perfect but satisfactory.

In **Model 2** the dependent variable is satisfaction (SA) factor. Satisfaction can be predicted mainly by individualized consideration (Beta = .558). Intellectual stimulation (Beta = .144) predicts satisfaction slightly. The values of building trust and confidence (Beta = .094) and inspirational motivation (Beta = .076) are not significant. The Beta

values of controlling and corrective (-.067) and passive (-.034) leadership are both negative. When studying the various combinations of independent variables (see Appendix K and L), it is obvious that individualized consideration (supported by intellectual stimulation) is crucial if we are looking for satisfaction to leadership behaviors in organizations. The scatterplot of standardized predicted values and standardized residuals (see Appendix J) with t-test suggest that the model is not perfect but satisfactory: there is one profile that does not fit to the model at all.

In **Model 3** the dependent variable is extra effort (EE) factor. Extra effort can be predicted mainly by inspirational motivation (Beta = .360), building trust and confidence (Beta = .281) and individualized consideration (Beta = .280). Passive leadership (Beta = .103) exceeds intellectual stimulation (Beta = .087). Controlling and corrective leadership has non-significant (-.061) Beta-value. When studying the various combinations of independent variables (see Appendix K and L), it is obvious that extra effort is the most complex outcome factor in this model to be explained by behavioral factors. Referring to the Appendix K (page 3) it seems obvious, the extra effort may have at least two relevant birth mechanisms, which are personal commitment to the leader (IC and IM/BT) and inspirational intellectual challenges at work (IS and IM). The scatterplot of standardized predicted values and standardized residuals (see Appendix J) with t-test suggest that the model is satisfactory.

The residual statistics (see Appendix J), the analysis of various combinations with independent factors (see Appendix K) and regression models without CL and PL factors with analysis of variance and coding coefficients (see Appendix L) suggest, that:

- it would be possible to improve the primary regression model with various independent factors; thus, the primary model is rather good as well,
- the primary regression model has unnecessary independent factors; that is so because the main interest here is not to optimize the regression model - the focus is to learn to understand something about the internal causal effects of the DLM factors in order to be able to explain individual leadership profiles,
- tested unlinear regression models did not provide any significant new information.

If regression analysis is to be used for predictive purposes, it should be validated on another sample. Because change errors operate differently in different samples, the regression weights calculated for the original sample may not be the same in other samples. In order to determine the validity of multiple-regression equation, it should be cross-validated by trying it on another sample. In the cross validation, the multiple correlation will generally be lower than in the original sample on which the regression weights were calculated. This tendency for multiple correlations to decrease when the research is repeated with a different sample is referred to as shrinkage (Ary et al 1996, 410).

Even if the primary focus here was not to determine exact weights for the predictors, the validation procedure was completed by doing the regression analysis with another sample. A suitable sample at hand was the Savo Brigade sample (used already in paragraph 8.5), collected during autumn 2000, consisting of 256 squad leaders evaluated by 3024 subordinates. The results of this regression analysis are shown in Appendix I. In general, there are no remarkable differences in between the respective Beta values. In all the models, the top predictor (behavioral factor) was the same, even though in the first and second model the level of Beta values was decreased, as expected. CL and PL factors got about the same values in all the models in both samples.

One slight change in between the original and the second sample is that the Beta values of intellectual stimulation (IS) were generally increasing. Is it only a statistical phenomenon or is it actually a sign of change in military leadership culture in Savo Brigade, caused by the new leadership training program? In my original sample, collected in March 1999, the average of intellectual stimulation for the squad leaders was 2.15, as shown in figure 26. In the Savo Brigade sample, collected in September to December 2000, the respective value of IS factor is 2.43. The difference is significant at .000 level. It is probable that the new training program has had already some effects concerning the leadership behavior of conscript leaders. Thus it is a task for another research to study this question more precisely.

The results of the primary regression analysis raise at least two questions. *Why does the Beta value of Passive leadership turn positive in Model 3 (and even significantly)? Is the IS factor unnecessary or meaningless according to these results?*

The interpretation of the results concerning passive leadership factor is comparable to the conclusions made earlier about "under-performing" leaders. If the leader or instructor is highly active (non-passive), it means that the leader or instructor is present all the time and the subordinates may have very few possibilities to think and act independently. On the contrary, if for example the platoon instructor is more passive, the conscript leaders have a possibility to take more responsibility of the training and other actions. The sense and willingness to carry the responsibility is a path towards commitment, which can explain also such very positive outcomes as extra effort. Actually, the latest unpublished conscript surveys executed in June 2001 in the FDF support this conclusion.

As seen in Figure 30, a platoon instructor can be highly competent and effective although he is quite passive. As a matter of fact, in the case of platoon instructor (PI51), the level of outcomes is higher than the level of professional skills and deep leadership factors. This phenomena can be explained by the effect of extra effort, but only in the context of strong (level 3.00 or above) deep leadership factors in comparison to profile of platoon commander (PC14).

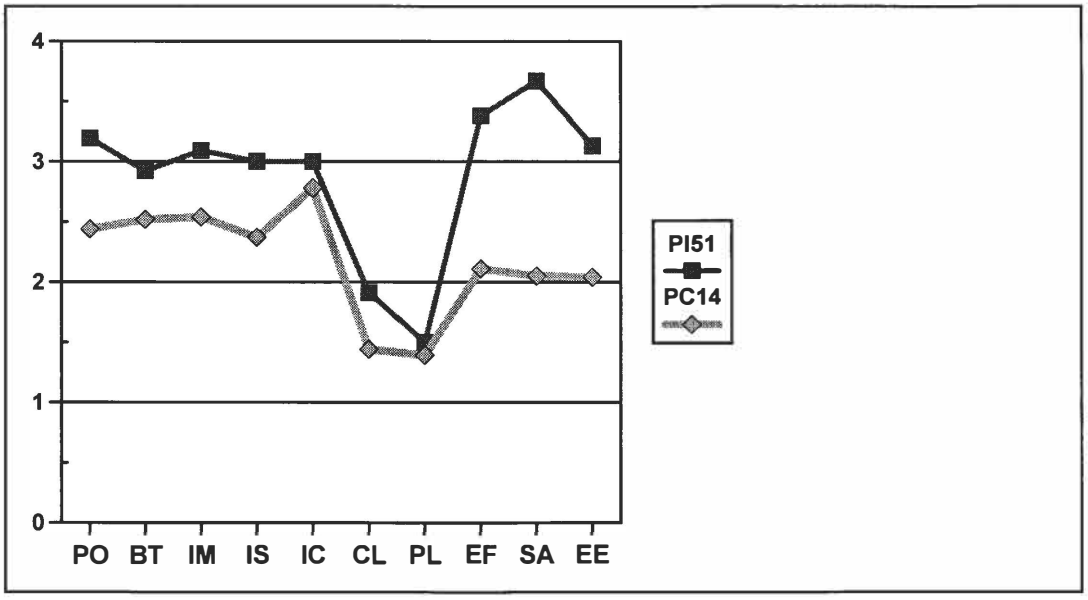


Figure 30. The profiles of platoon instructor 51 (PI51) and platoon commander 14 (PC14).

The meaning and importance of intellectual stimulation has to be studied according to the results of regression analysis. The correlations between IS factor and other deep leadership factors are quite high as shown already in table 11 (.69, .70 and .74 respectively to BT, IM and IC factors). More information can be found by studying the individual profiles. Among the 99 squad leaders only seven (SL7, SL18, SL21, SL23,

SL29, SL61 and SL78) have a profile in which the IS factor dominates the DL dimension. In general, all of these leaders have low or non-leadership profile, and the differences in between the four DL factors are small.

Among the platoon commanders two (PC11 and PC29) have a profile in which the IS factor dominates the DL dimension. The other platoon commander (PC11) is the one who falls in cluster analysis to the fifth cluster (non-leadership profile). Instead, platoon commander 29 has otherwise a fairly average profile. Among the platoon instructors two of them (PI36 and PI48) have a profile in which the IS factor dominates the DL dimension. Both of these other platoon instructors have quite a low profile in general. The profiles of platoon instructor 48 (PI48) and platoon commander 29 (PC29) are shown in Figure 31.

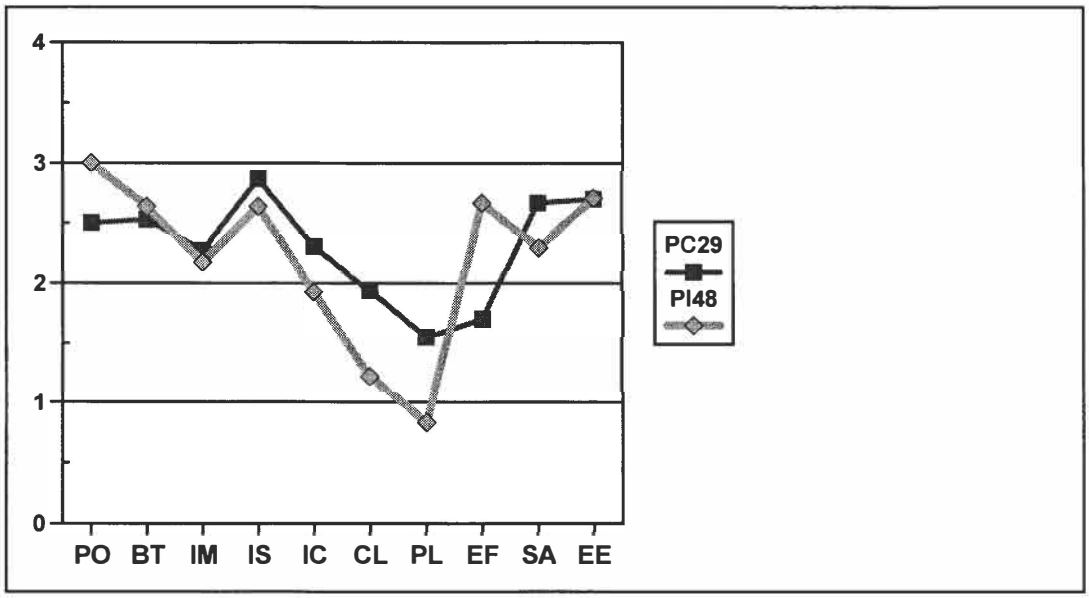


Figure 31. The profiles of platoon instructor 48 (PI48) and platoon commander 29 (PC29)

The conclusion of the profiles shown in Figure 31 is that intellectual stimulation has a clear effect on extra effort, when the level of other deep leadership factors is at least average (Pearson correlation between IS and EE factors is .64). In low or non-leadership profiles this principle does not work. *Regression analysis done with the original sample can not find this connection because this kind of profile is such a rare occasion*. In the regression analysis done with the validation sample, the Beta value of intellectual stimulation is significant (.12) but still quite low.

Intellectual stimulation may not be the most important deep leadership factor in basic military training, but in some situations and environments, e.g. in organizations with

constant developmental needs, intellectual stimulation may be crucial for the total success. In modern military training, one of the main challenges is the assimilation of discipline and self-initiativeness; both are needed. It is obvious that after the basic military training, the meaning and importance of intellectual stimulation increases when the function of training is to go beyond individual skills and to create effective war time units with high action competence. It is a task of further research to find out whether the training culture in the FDF functions according to this principle.

10.4 Examining the individual profiles

As mentioned earlier, research in the area of leadership cannot be supported only by quantitative studies with large samples and analyses based on averages. On the contrary, it is a fact that there is no (for example, in this study) such individual leadership profile that would perfectly match the average profile. For this reason, examining the individual profiles gives us more qualitative, more reliable picture of the phenomenon at hand. All the individual profiles in the sample (N=241) are presented in Appendix F.

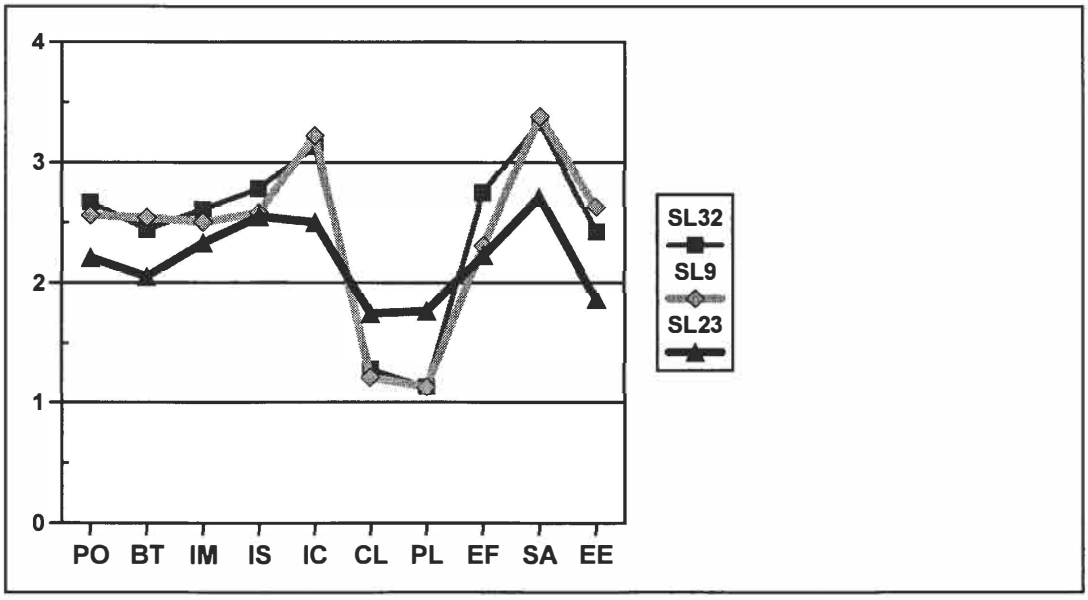


Figure 32. The profiles of three squad leaders (SL9), (SL23) and (SL32)

The PO factor is more or less an overall estimation of the personal potential for leadership in the position at hand. Through the respective items, it covers the necessary skills and knowledge needed for a leader to be competent. In larger meaning, the potential factor can be seen as an evaluation of the possibilities of growth and personal development. Among the profiles in the data (N=241), there are only 12 such leaders whose profiles in DL and OC dimensions are higher than their PO factor. Four of these leaders belong to

the Cluster 3, non-leaders. This kind of profile is a rare occasion. Most of these exceptional profiles are those of squad leaders, as shown in Figure 32. Individualized consideration (IC) is the most important factor available to these squad leaders to reach for better outcomes than would be reasonable to expect according to the level of potential factor.

Undeniably, professional skills are a basis for outstanding leadership behavior. But for outstanding outcomes (results), the leader needs to behave according to the four deep leadership factors. In the context of confirmatory factor analysis I supposed that even a very potential leader can gain low results because of the lack of appropriate behavior, but not vice versa. According to the profiles shown in Figure 32, the leader *may be able to go beyond his professional skills* by strong emphasis on the deep leadership factors of intellectual stimulation and individualized consideration. For the squad leader 23 (SL23), the level of CI and PL factors is also a developmental challenge. He/she may be a leader who has been "wrapped" in too close and friendly relations with subordinates, and because he/she obviously does not have enough potential and capabilities to build trust, he/she is only a "nice and harmless" fellow in the group.

On the other hand, the ratio between *"how do I lead the whole group?"* (average of BT and IM factors) and *"how do I lead an individual soldier?"* (average of IS and IC factors) in these profiles is 2.42 vs. 2.79. A conclusion is that at least for squad leaders the deep leadership factors intellectual stimulation (IS) and individualized consideration (IC) represent behavior what can help the leader to grow beyond his estimated potential and skills. In the long run, of course, it is recommended that these leaders concentrate on developing their professional skills, which can actually be a lot of easier than developing deep leadership behavior. This is an assumption based on the theoreticel framework of leadership behavior, in which I set a hypothesis that the process, in which permanent behavioral changes are possible, is based on self-reflection at the level of personal needs, values and attitudes. When this "deeper" level of human mental functions is involved, the changes seen in behavior take more time.

Are there profiles with quite high potential factor but quite low outcomes, as supposed? All the profiles were studied in order to find the ones with major difference (difference over 0.6 level, which is more than the average standard deviation of the factors in the DLM) between PO factor and respective outcomes. In this sample, there were 14 such squad leaders, 9 platoon commanders and 21 platoon instructors (26 % of all instructors). These

are leaders who are clearly "under-performing": they would have the potential and the skills, and most of them are also building trust and confidence at a relatively high level, but the problems occur in the other factors of deep leadership behavior. Figure 33 presents three typical profiles, one from each group of leaders, with the challenge of "under-performing".

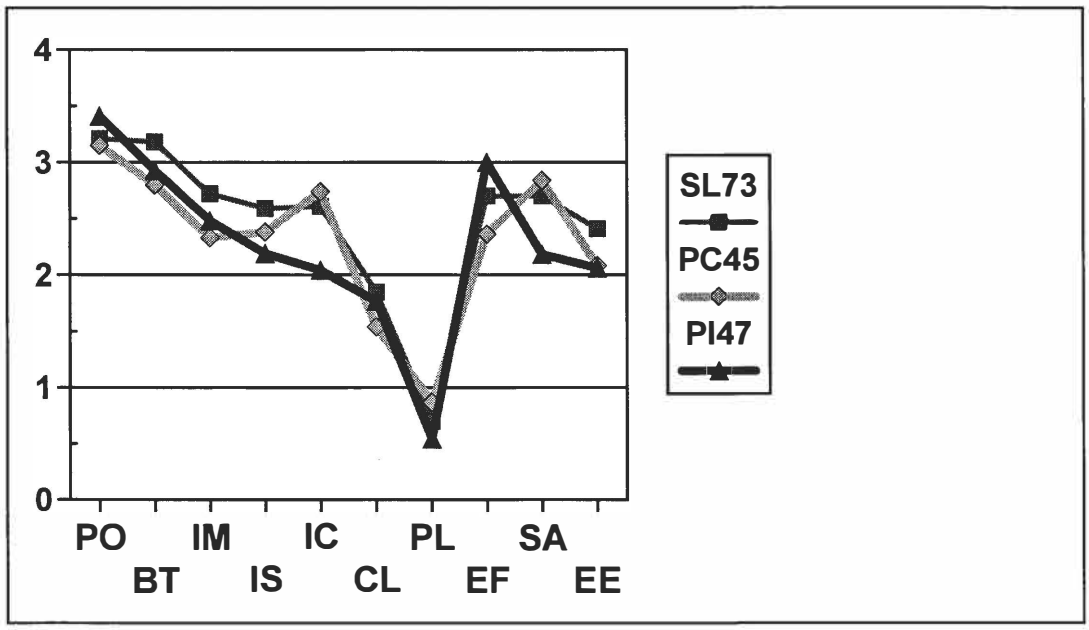


Figure 33. Examples of "under-performing" leaders.

Some general observations can be made of these "under-performing" leaders. In the first place we must remind that these profiles come from peace-time military environment, when the training of the troops is the most important task. The ultimate goal of training is to make effective troops in the case of war. The effectiveness of the leader or instructor is not the same thing as the effectiveness of a war-time unit. As seen in Figure 33, the effectiveness of these leaders has been evaluated by their subordinates to be quite high, but the other outcome factors (satisfaction and extra effort) reveal the problems in making soldiers commit to the tasks. Platoon commander 45 (PC45) succeeds better than the two other leaders in individualized consideration, and the relatively high level of satisfaction is a reflection of this kind of leadership behavior.

Behind these "under-performing" profiles we can find individual leaders and instructors, who are both competent and personally quite effective. The problem is that they are not able to transfer their personal potential and skillfulness to the unit they are training. The most obvious reasons are:

- the lack of one´s own commitment and enthusiastic example during the exercises,

- the lack of intellectual stimulation and individualized consideration in general,
- strongly controlling and corrective leadership with a consequence of passive and "I am afraid to make a mistake" atmosphere in the unit, and
- highly active (non-passive) leadership, which means that the leader or instructor is present all the time and the subordinates have very few possibilities to try to think and act independently.

The most radical is the difference between PO and EE factors. All the obvious reasons listed above are causes for a lack of motivation and commitment to tasks and training objectives in military context. As leadership can be taught, these "under-performing" leaders would most likely have good opportunities for personal development in order to reach outstanding training results with their units (26 % of platoon instructors are within this group). When we speak of the resistance to the new leadership training program, it is also obvious that among this group of instructors we can find persons who manifest that it is enough for military leaders to be skillful and to give simple orders.

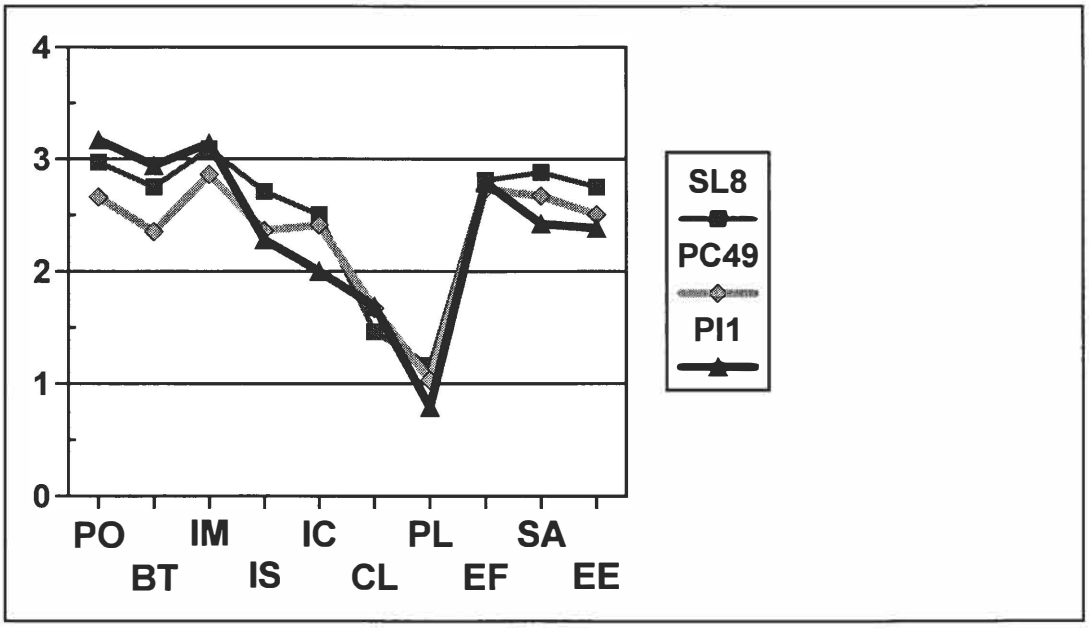


Figure 34. Three profiles with IM domination.

Inspirational motivation (IM) is in some cases the highest behavioral factor for a military leader. Respectively, in Figure 34 there are three such profiles, one from each group of leaders. Typical for these inspirationally motivating leaders seems to be that in a way they "concentrate" their social energy into motivating the whole group. Then, eventually, for the individuals there is not so much left, and the outcomes are only average or reasonably good. In all of these profiles in Figure 34, the level of building trust and confidence is not

as good as it could be. It is possible that these leaders have been developing their leadership by learning different "tricks" on how to get the soldiers motivated. In the same time, they have not been developing themselves at personal level.

The interpretation of controlling and corrective leadership (CL) is connected to the other behavioral factors. In general, controlling and corrective leadership should be evaluated by subordinates to be quite low, because this factor is merely negatively transactional. The relationship between the CL and PL factors is also very interesting.

Controlling and corrective leadership in military context is almost a synonym for formal discipline. Typically, formal discipline is the main tool that incompetent and unsuccessful leaders have in a military organization. On the other hand, the items loading on the CL factor describe behavior, that is needed in basic training situations. If the value of CL factor is higher than the values of deep leadership factors, the leader falls into this "emphasis on formal discipline" category. According to the results at hand, this is mainly a problem of squad leaders.

Among the squad leaders, 14 of them have a profile in which the CL factor dominates all the DL factors. All of these leaders belong to Cluster 5, and they have a non-leadership profile. Among the platoon commanders, only one (PC11) has this kind of profile. Among the platoon instructors, two of them (PI35 and PI71) have a CL dominated profile. Passive leadership in these cases is generally too high (over the level of 1.5) and in four cases the PL factor even exceeds the CL factor. This is a sign of a total lack of motivation towards the responsibilities of a military leader. *Leadership training of these individuals may be a unnecessary task for the military organization: the development of the selection process is probably the easiest way to approach this problem.*

In the Figure 35 there are two profiles, squad leader 11 and platoon instructor 66. The squad leader has low values in both CL and PL factors. The platoon instructor has a rare profile: in his/her case the PL factor has higher value than the CL factor. There are only very few such profiles in the whole sample. In the case of platoon instructor 66, the fairly high level of passive leadership can be related to the level of professional skills. This profile (PI66) is a rare case also because the potential factor is lower than all the deep leadership factors. Here we may have an unexperienced instructor, who may be lacking some professional skills and is therefore occasionally passive. Thus the very good level of deep leadership factors makes it possible to have very good outcomes.

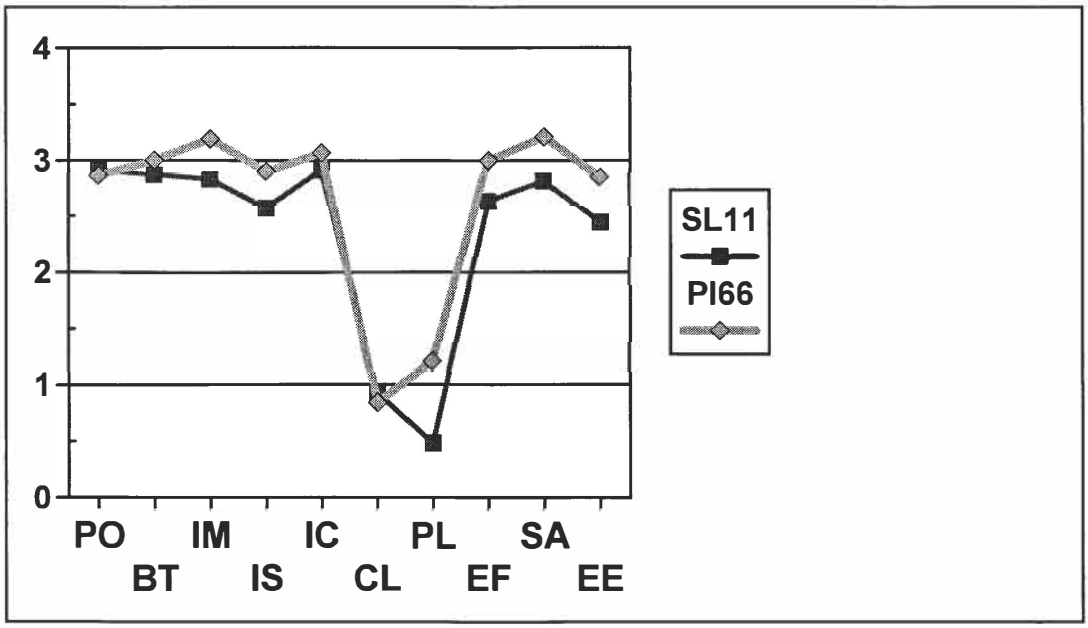


Figure 35. The profiles of squad leader 11 (SL11) and platoon instructor 66 (PI66).

When using the DLQ as an developmental instrument, the interpretation of CL and PL factors is not reliable without having the whole profile at hand, with analysis of environmental factors.

As shown in Figure 36, the relationship between the CL and PL factors is mainly clear, having .69 intercorrelation. On the other hand, the partial correlation between the CL and PL factors, when controlling the deep leadership dimension, decreases to .54. In the first place, I could determine that the increasing level of passive leadership should have quite a linear negative impact to outcomes, as being more passive means actually being not as active as needed. I would suggest that in the battlefield environment this statement is correct.

But, in the peace time training environment, the relationship between passive leadership and outcomes may be curve-linear: in the context of high level deep leadership and especially intellectual stimulation, passive leadership in a way guarantees that the subordinates have independent tasks, freedom of action and more challenging decision-making occasions. Also, if the leader is really poor, having only controlling means in his/her personal toolbox, then it can better that the leader actually stays out of the process. In this case, the most competent subordinates normally take more responsibility.

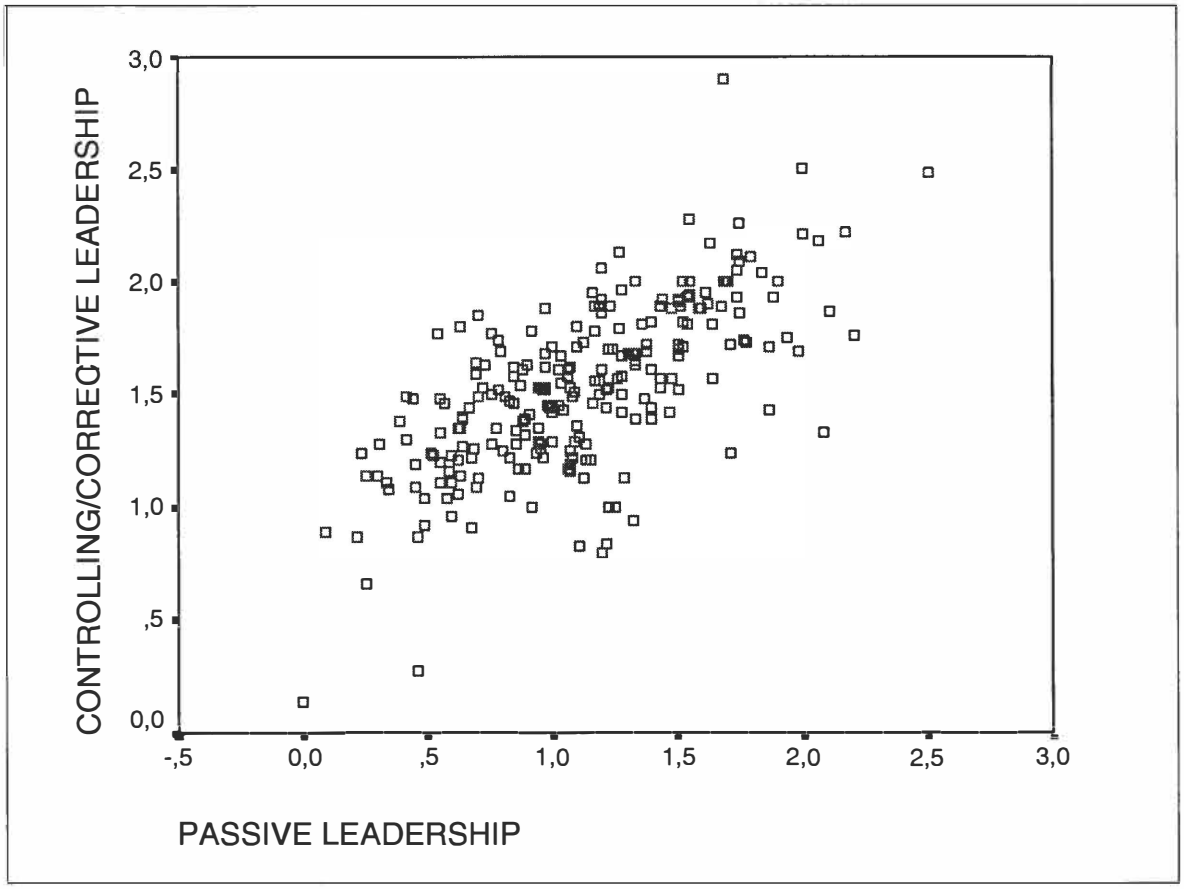


Figure 36. The scatterplot of CL and PL factors

If I go back to the classic term of management, the core elements of effective management have been built into the DLM and DLQ. The single items of the PO factor together with the items of the PL factor can reveal if there are some developmental needs in this era.

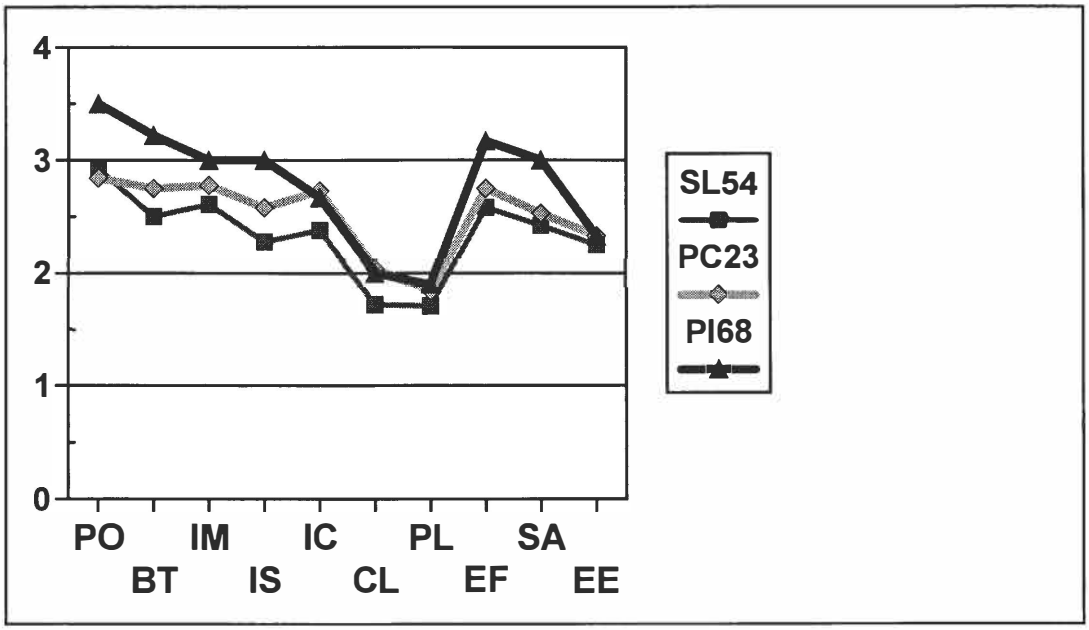


Figure 37. The profiles of SL54, PC23 and PI68.

For example, if a individual leader has problems in decision-making, the PL factor will raise and at the same time, the PO factor will fall. On average, the value of the CL factor is about 0.5 higher than the value of PL factor. The main rule of the PL factor at close distance. However, in context of high values in deep leadership factors, the values of the CL and PL factors may vary even close to 2.0 level.

In Figure 37 I show three profiles, one from each group of leaders, in which the effectiveness (EF) factor dominates the outcomes. These leaders are typically "under-performing" leaders, having also high values in the CL and PL factors. With this kind of profiles, the outcomes tell us that these leaders may give an impression of being effective, but at the same time the satisfaction and, more important, the extra effort of subordinates is much lower. Behind these profiles we may have military leaders who tend to be more transactional than transformational.

Is the effectiveness in these cases guaranteed at the level of some more relevant criteria, like training results on a longer time span? No, it is not. Without extra effort there is no true commitment to the tasks, and also the level of satisfaction indicates that most of the subordinates would prefer some other leader.

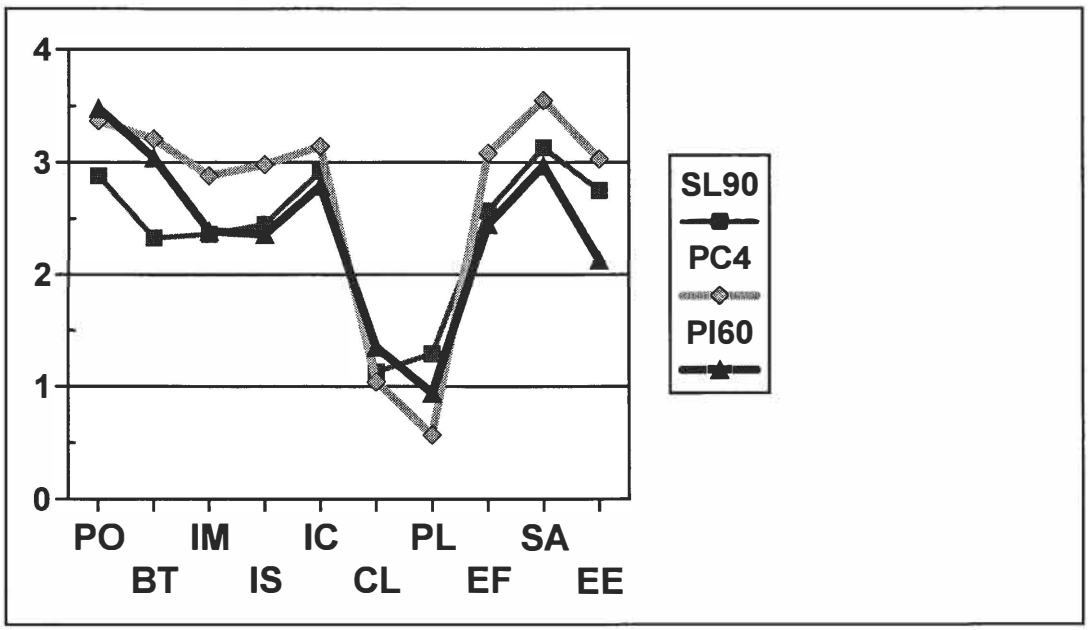


Figure 38. The profiles of SL90, PC4 and PI60.

In Figure 38 there are again three profiles, one from each group of leaders, in which the satisfaction (SA) factor dominates the outcomes. In the whole sample, this is the most typical profile considering the outcomes. As noticed earlier in the context of regression

analysis, the behavioral factor of individualized consideration (IC) had the highest Beta value when predicting satisfaction. The profiles in Figure 38 support this observation.

The main task of military leaders is not to make the subordinates to be very satisfied: fullfilling the task at hand through making soldiers and units commit to doing their best effort would sound much better goal. From this point of view, the profile of platoon instructor 60 (PI60) is a frustrating one. Having a high value in professional skills and pretty high values in BT and IC factors is not enough: this instructor is missing inspirational motivation and intellectual stimulation. Because of this, he/she is not able to raise extra effort among the trainees. Referring to the Finnish classic "Unknown Soldier", this the "Koskela" -type leader.

As an outcome of this kind of behavior, the subordinates are pretty satisfied, but at the same time evaluate that the effectiveness and extra effort are missing in the training environment. In their study Lahdenperä and Harinen (2000) analyzed the action competence of the Finnish battalion in the KFOR operation. As a final result they notice that:

> *"..the training of conscripts (to be sent abroad) must be executed in a way that makes them aware of the training objectives, understand the meaning of their training and commit to it. After all, the very basic goal is to the train soldiers, who can carry out their tasks independently and show operating iniative, when needed"* (Lahdenperä & Harinen 2000, 61).

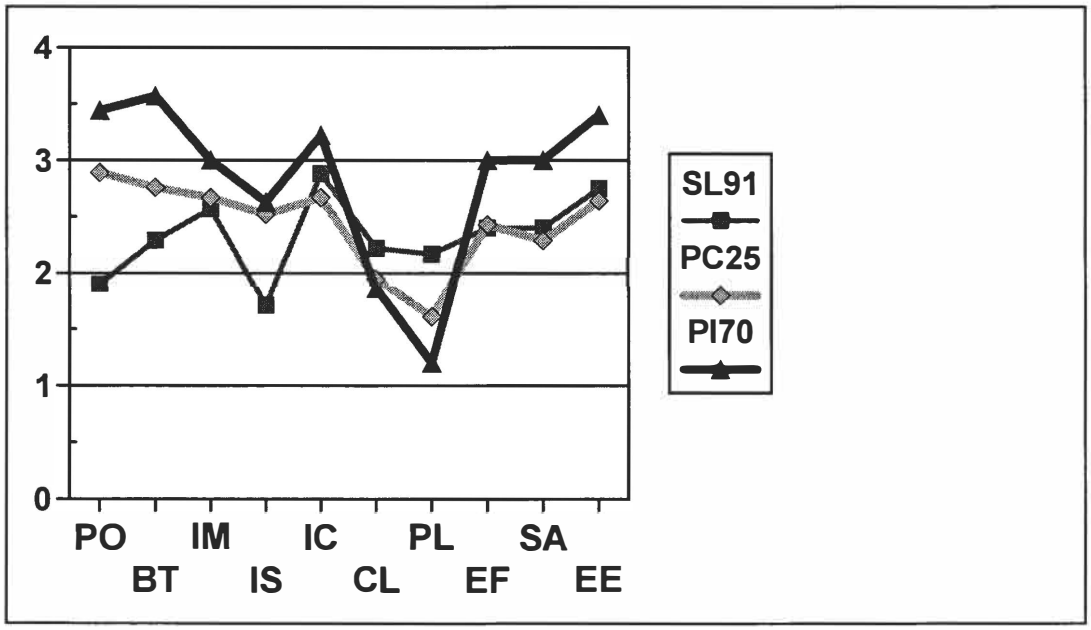


Figure 39. The profiles of SL91, PC25 and PI70.

Typically, the military instructor behind the profile PI60 appears to be a one who is not fully capable of responding to this challenge. The respective profile determines the main needs of leadership behavior development in this case quite clearly. Finally, there are in Figure 39 three profiles in which the extra effort (EE) factor is dominating the outcomes. This kind of profiles are rare occasions in the whole sample.

Explaining the profiles in Figure 39 is not as easy as it has been in previous cases. If we start from the earlier regression analysis, in Model 3 the dependent variable was the EE factor. It was predicted significantly by inspirational motivation, building trust and confidence and individualized consideration. On the other hand, in the very rare cases in which the intellectual stimulation was dominating the behavioral factors, there seemed to be a strong causal relationship to the extra effort factor. For the squad leader 91 (SL91), the IM and IC factors seem to be factors that assist him/her in going beyond the low value of professional skills. Because these profiles are not typical, there may be also some other uncontrolled variables coming between the behavior and outcomes, which makes the interpretation more difficult.

10.5 Preliminary conclusions

When analyzing the individual leadership profiles from a statistical point of view, it seems to be possible to find some basic mechanisms and causal explanations. These findings are not true in all the cases, but in the main body of cases they can be useful.

When using the DLQ as it should be used - as a feedback tool for personal development - the interpretation of the profile must be started with the analysis of the respective leadership environment. In the first place, this task should be done by the evaluated leader. There are several basic factors that set restrains and constrains for the leadership behavior analysis, such as:

- the overall environment (peace time training, peace support operation, war time scenario),
- the mission, task and objectives,
- the level of leadership in the chain of command, and
- the number of subordinates, among many other things.

The list above does not mean that the basic idea of deep leadership would not work. The list means that in order to find out the most relevant feedback information, **the leader**

must take into account the environmental and situational factors in his/her own evaluation. To be able to do that, he/she needs to have sufficients meta-skills and a self-directive attitude to leadership development. Understanding and explaining a leadership profile could be enhanced with analysis through linguistic data. This is possible also with fuzzy methods (Zadev 2001).

The preliminary results of the first analysis with one fuzzy method (see Appendix M) confirm most of the conclusions done on the basis of cluster analysis. Thus, there are some interesting details that fuzzy approach brings up. One of the possible clusters on this basis is a cluster of “tired” leaders (Appendix M, neuron matrix). These leaders have potential and professional competence. They are also very “human”, having a high profile in individualized consideration. Unfortunately, these leaders have lost their enthusiasm for the goals of military training. Therefore they gain very poor results.

If the leader is not able to face the feedback within the profile, he/she can always pretend that the true developmental needs are only temporary issues caused by situational factors. On the other hand, a leader with poor self-confidence may take the profile as a total conviction, neglecting the essential interpretation. Critical self-reflection and self-directedness support the analysis in the best possible way.

11. DISCUSSION

In order to start to review the main results, conclusions and suggestions I refer to Figure 1, in which I present my perception of how the basic tools of science are related to each other as a part of the formation of theory. In the main body of research, all the main parts of that framework have been covered and analyzed from the viewpoint of leadership training. Therefore it is obvious to me that I should be able to summarize the main outcomes through that same framework, as seen in Figure 40.

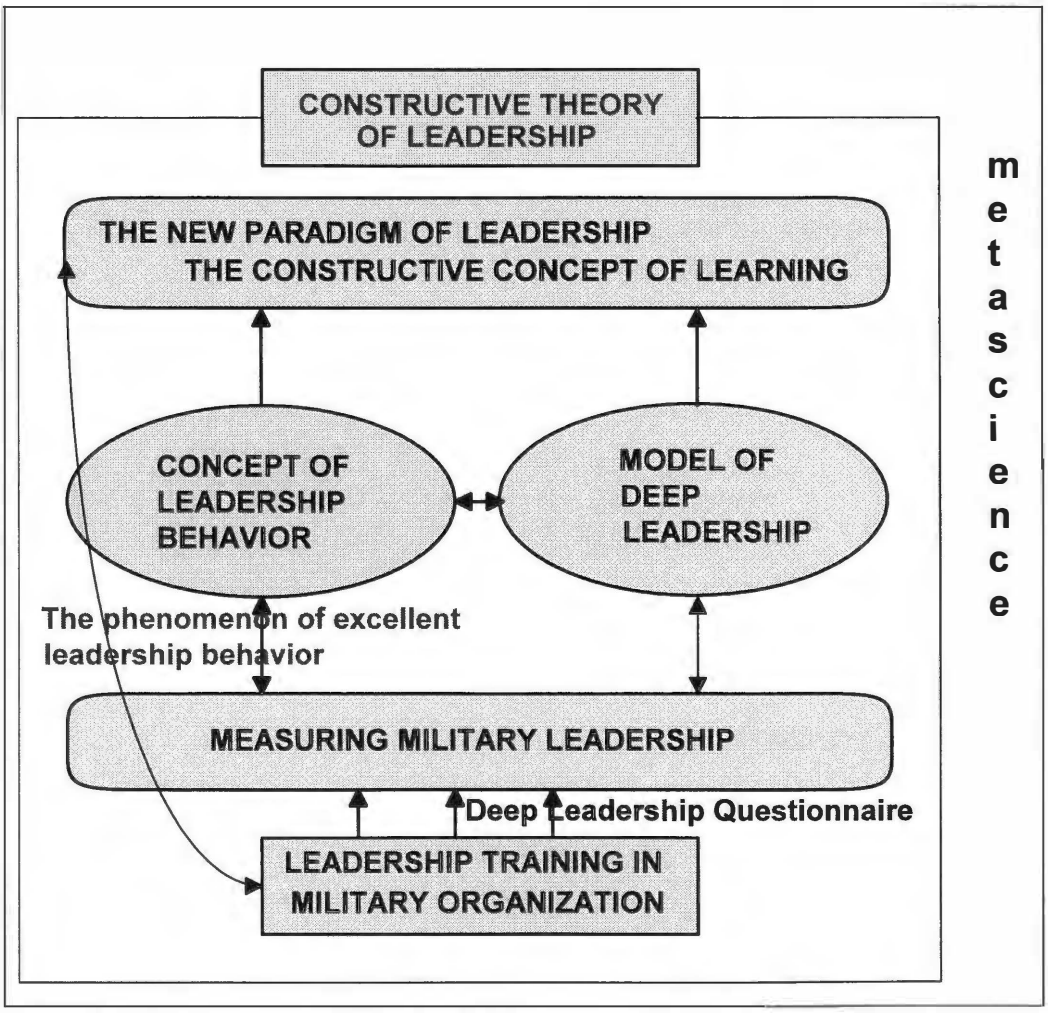


Figure 40. The main results in the metascientific framework

The practical interest of this study has been to develop scientific preconditions for leadership training in the Finnish Defence Forces. The actual military leadership training as a process, structure or curriculum has not been the main focus. The emphasis has been on building a theoretical framework, defining concepts, creating an adaptable model and validating a individual feedback tool needed prior to effective training practises. Of course, this emphasis implicitely requires knowledge and analysis of the best practices in

leadership training. The new paradigm of leadership, as well as the large amount of feedback concerning the renewed leadership training in the FDF have been decisive sources of information in this point of view. During the process of scientific inquiry in the era of learning theories, it has been very rewarding to find out that the critical constructivist approach fully supports the new leadership training program. Mind-centered, interaction-centered as well as experience-centered concepts and methods are combined to support each other in the framework of leadership behavior.

11.1 Results in a metascientific framework

When building the theoretical framework, the center of gravity is the concept of leadership behavior. It is simple and thus revolutionary starting point for all the developmental efforts that follow. The concept of leadership behavior makes it possible to:

- utilize the theories and knowledge of behavioral and social science,
- create supportive frameworks for individual learning as well as for organizational development,
- model excellent leadership behavior,
- measure reliably the leadership behavior defined in the respective model and
- build preconditions for the principles of learning organization through the growth of key personnel in a organization.

There are elements for a new metascientific basis of leadership. In my opinion, this basis could be called the *"constructive theory of leadership"* (Lambert et al, 1995*).* The core phenomenon of this theory is the transformative mechanism of human interaction and learning. In the first place, this theory could be based on the change of individual meaning perspectives in a direct or indirect process of social interaction. This theory could explain how we master our own development and how we implement development in other people. Development should be seen here as a broad concept, comparable to the overall personal growth but also, when needed, in a limited context like leadership training.

The constructive theory of leadership can hardly be a piece of "purely objective" science, because of the value-laden nature of intentional human development. According to Delanty (1997), I do believe that contemporary conceptualization of social science, which is pointing in the direction of a discourse of critical constructivism, would accept the constructive theory of leadership in order to construct social reality. Learning for and

through leadership is a value-based phenomenon that could unify different approaches, concepts and models, as Burns noticed:

> *"..Ultimately education and leadership shade into each other to become almost inseparable, but only when both are defined as the reciprocal raising of levels of motivation rather than indoctrination or coercion."* (Burns 1978, 448).

Still, the further development of constructive theory of leadership is not a matter of this study, but a main challenge for the new paradigm of leadership if it is to develop as a competitive paradigm should do.

The new paradigm of leadership has given me all the tools needed for creating the entity of the new leadership training program in the FDF. In order to find out and define the caveats in this doctrinal approach, I have studied the criticism of the new leadership training program and the validity of the DLM as such. In general, this approach can bypass the criticism in all the most important aspects. In fact, the feedback of trainees and the unstructured external evaluation of the program has been surprisingly positive. This observation confirms the earlier findings (Bass, 1998a) about the advantages of the new paradigm of leadership in the context of leadership training.

On the other hand, the positive feedback does not guarantee the quality of the practices in this program in the field. Seeing every military leader also as a coach for his/her subordinates is a vision that may take a generation to become concrete. There is a lot of educating, training and learning in between. From the scientific point of view, as noticed already, there is a justified need to enhance and deepen the theory behind the new paradigm of leadership. Is this paradigm the best one? Could we find a approach, that could utilize even several scientific paradigms for one goal? My suggestion is to do it under the umbrella of constructive theory of leadership.

11.2 Paradigmatic analysis of the results

When creating the theoretical basis in the first part of my research, I committed myself to the wide concept of scientific paradigm. In the following paragraphs I will review the main results in a respective order (see page 65).

11.2.1 Background, essential features, advantages and disadvantages

This is a study carried out in the FDF peace time training environment. There has been a challenge to develop a new leadership training program, applicable on all levels of military leadership as well as in the civilian society. In order to create a foundation for such program, I chose two conceptual pillars on which the program has been built. These pillars are, in fact, the essential features of the whole research project: the new paradigm of leadership and the critical constructivist concept of learning.

Referring to the experiences and feedback concerning the new leadership training program, the main advantage seems to be that it actually works. If we think about the organizational culture in the FDF, the new program has tasks that go beyond the needs of contemporary courses in the NDC or day-to-day training in the field. I do believe that this new leadership training program can help the FDF to:

- understand the postmodern transformation of society,
- create preconditions for effective management of change,
- recruit new personnel as a competitive employer,
- enhance the position of the FDF as an relevant part of the educational system in the Finnish society,
- gain better results in its peace time activities, and
- direct the military culture in Finland towards the ideas and procedures of a learning organization.

Finally, all the advantages or possible outcomes listed above are second hand results. As the primary task of the FDF is to defend Finland and its´ citizens in all situations, a military culture driven by the cornerstones of deep leadership could be a major element of the credibility of the FDF. **In a case of war, for a rather small nation it is vital to have leaders who are able to combine the core values and the will of the people as a basis of total defence.** This will remain both the main threat and the center of gravity of Finnish defence.

The practical implications of the new leadership training program seem to have mainly positive features, aspects and reflections. The possible disadvantages of the paradigmatic foundation are related to the basic assumptions of the paradigm itself. The main question is, are people acting like the paradigm assumes: *is the positive, growth-oriented concept of human beings a relevant starting point for a leadership training program?* People who

disagree with the critical constructivist concept of learning can easily find examples of situations or subordinates who cannot be led through the principles of deep leadership. On the other hand, my definition of leadership behavior does already restrain such occasions: if the leader is not capable of applying intentional interaction, the transactional practices or even force (in a crisis situation) are to be used.

11.2.2 Interpretation of reality

As an obedient follower of paradigmatic research method, there is a need to report a interpretation of reality through the chosen approach. I have responded to this need by analyzing the concept and possible change of military command as a framework of military leadership. Military leadership behavior is an active and functional dimension of military leadership. Military leadership is one interactive dimension of military command. Military command is a core function in a military organization. Therefore the interpretation of social reality has to be done in this study within a military organization, its culture and changing external environment. The specific environment of this study is the respective source of my empirical data: a peace-time military training environment on a level of training company.

When analyzing the individual leadership profiles, I have tried to draw conclusions in order to describe military leadership in this specific environment. The new paradigm of leadership is very clear in this sense: the phenomenon of excellent leadership behavior does exist also in this environment. In addition to this, the paradigm does suppose that the excellent (deep) leadership behavior generally produces better results than some other behaviors, like controlling and corrective leadership or passive leadership.

Indeed, according to the empirical results, the phenomenon exists also in the FDF training environment. The causal connection from deep leadership behaviors to the implicit outcomes is very strong according to the DLQ. Fortunately, I was able to include the results of a recent study made by Vuorio (2001) to the context of criterion-related validity, since he used the DLQ as a measurement of leadership behavior. In his study, Vuorio has three independent criteria in a context of army training companies, and he can point out a statistically significant relationship between the leadership behavior of a company commander and the quality as well as the training results of the respective company.

Through the concept of military command I am able to relate the leadership behavior to the two other key dimensions, which are the leader´s position in an organization and decision-making as a core factor of the management process. The relationship between these three sub-concepts is complex, and the optimal balance (which is actually something we normally call flexibility) varies a lot depending on the overall environment and situational factors. It seems that the leader´s position is the most stable concept in a military organization: decision-making in the management process and leadership behavior as an overall activity are the dynamic sub-concepts needed to define the concept of military command.

It is not so difficult to find out what is the actual content or definition of a sub-concept. The complexity grows on to another level when we combine these three sub-concepts in uncalculated environments and situations and order the military leader: *"Based on your unique personality, take these concepts and what ever happens, maintain an optimal balance between them for the rest of your life!"*. It is not a surprise that a perfect military leader is something that does not exist.

The critical constructivist concept of learning can make this task a little bit easier, when the concept is being understood as a combination of experiential, social and transformative learning. As a simplified example, we can create a number of personal schemes based on all the different environments and situations we meet as military leaders. The more we posses different schemes, the more we are able to transfer "lessons learned" from one interaction situation to another in order to find the right balance in our command.

We can define military command from this approach, but only when the core sub-concepts are seen as mutually related dimensions in changing frameworks. The complexity of excellent military command is due to the constant need to find the balance in this framework. This complexity is being met in every aspect of this study, starting from the reality of an individual squad leader and ending up to the conceptualizising and theoretizising of military command and leadership.

11.2.3 Theory, model and scientific information

For a paradigmatic approach, a researcher should have a good insight in to the previous research in his/her specific area of scientific inquiry. In fact, considering the new

leadership paradigm, this is a “mission impossible”. Only in the context of transformational leadership the quatity of international research is beyond the resources of a individual researcher. Therefore it has been necessary to concentrate on the research that seems to be the most relevant to this study. The contemporary research done by Bernard M. Bass and his colleagues has been the core link to the new paradigm of leadership and especially to its military dimension.

In order to take advantage of scientific information, the researcher should base his framework on paradigmatic theory or model. In the chapter 6, I reviewed the previous empirical research on which the DLM is based. This research has been done mostly within the school of transformational leadership. Thus, the DLM is not a replica of FRL or any other comparable model.

In addition to the previous empirical research and its findings, there were two major sources of iniative which had an impact on the development of the DLM. The first source of iniative was the still ongoing process of studying the Finnish war experiences and our culture in the era of military leadership. This process was supported by the lessons learned concerning the contemporary peace support operations. The second major source of iniative was the paradigm itself, especially the basic assumptions and the constructive nature of those assumptions.

As a result of the four years development process, I ended up with a model with three main dimensions and ten factors. What is essential to me is that this structure is directly based on the framework of leadership behavior, which ties the DLM to the paradigm in the level of an individual leader. Furthermore, the general framework of leadership ties the model to the paradigm on the level of an organization.

There is one essential idea in the DLM and in the respective frameworks which makes it relevant to speak about a new constructive theory of leadership. This idea is to clearly separate the leader´s potential and behavior from each other in the leadership training programs. This principle respects the constructive nature of leadership development, because the systematic feedback deals with leadership behavior and the respective outcomes. The leader him/herself is responsible for the deeper analysis of this feedback information, which should lead, in a case of a developmental need, to a personal process with the aim of permanent change.

Because the need of change often deals with personal values, needs, wants, attitudes and basic sources of motivation, it means that the individual has to reshape his/her meaning perspectives. This is what Burns (1978) meant when he wrote about the conflict between moral values and personal needs. Burns ended up with the conclusion that in this context, personal growth and development mean that the individual makes his/her choices increasingly often according to moral values.

In general, in this context we speak about the relationship between personal values and learning. According to the new paradigm of leadership, values are abstractions that are pursued by the leader. Values serve as criteria: they direct the choices made by individuals as well as human communities, and they are reflected in leadership behavior. The more the environmental and situational factors force the leader to make value-based choices and decisions, the more reliably his/her leadership behavior reflects the values.

There is a fairly broad consensus among the researchers that it is impossible to measure individual values directly. Instead, the researchers see that values must be inferred by observing the individual´s behavior, interaction and language. The constructivist conception of learning identifies the relationship between values and behavior, and makes the learning process in the era of leadership reasonable by emphasizing the meaning of self-directedness in this context.

In leadership training programs, one of the leading principles of open discussions is that the "burden" of personal development belongs only to the individual leader, not to anybody else. When an individual is willing to assume the external (organizational) responsibility of a leader, he/she should assume also the internal (individual) responsibility of continuous aspiration for personal development. This is the constructive principle of leadership training.

In the point of view of organizational training, the question to be answered is how can we arouse and support the positive attitude of the trainees towards self-directedness in the era of leadership deveplopment. To be exact, the positive attitude is not enough: the final objective is a true commitment. This very spesific objective is the one that sets the highest demands for the leadership training program, and especially for the respective instructor(s).

11.2.4 Methodological solutions

It is typical of the research methods of the paradigm to collect information by a questionnaire built on the basis of the structure of the model. Using information obtained with the questionnaire, it is possible to statistically study the validity and reliability of the questionnaire as well as the hypothetical structure of the model in the background. In this case, confirmatory factor analysis (CFA) and programs based on structural equation models (SEM) are typically used. The hierarchical structure of the dimensions of leadership behavior in relation to desired effects can be studied using regression analysis. Cluster analysis, among other things, is used to analyze extensive material consisting of leadership profiles.

The quantitative research methods used in this study are the basic methods used also in the other comparative studies among the new paradigm of leadership. The most powerful, and in light of gaining satisfactory results, the most difficult method is the confirmatory factor analysis. CFA sets high demands for the model and respective questionnaire to be tested. According to the results of the empirical part of my study, the DLM and DLQ are statistically acceptable constructs.

The interpretation of leadership profiles by statistical means is a challenging task. It can even be questioned whether it is reasonable: a leadership profile should always be interpreted as taking into account the features of the respective operating environment. On the other hand, the statistical methods like regression analysis provide tools for understanding certain causal connections and probabilities. For that reason, the statistical analysis of leadership profiles on a large scale is merely research needed for validating the theoretical framework of the particular research design and for creating pre-understanding concerning the latent causal paths in a profile.

For an individual leader, the leadership profile based on the full range feedback is a very personal and delicate piece of information. The interpretation of the profile may be easier if the individual understands the causal connections between the dimensions and factors of the model behind the profile. This is not even possible if the questionnaire used to produce some kind of profile has been developed wíthout sufficient theoretical background.

11.2.4.1 Soft computing methods

The new paradigm of leadership is a developing paradigm. One relevant and necessary direction for this development can be found in the era of empirical (quantitative) methods. The conventional approaches for understanding and predicting human behaviors based on analytical techniques have proven to be difficult. The computational environment used in such an analytical approach is perhaps too categoric and inflexible in order to cope with the intricacy and the complexity of the real world human systems. It turns out that in dealing with such systems, one has to face a high degree of uncertainty and tolerate imprecision. Trying to increase precision with traditional methods can be very costly.

The principal constituents of soft computing are fuzzy logic, artificial neural networks and probabilistic reasoning. These distinct and yet interrelated methodologies are currently attracting a great deal of attention and have already found a nunmer of practical applications ranging from industrial process control, fault diagnosis and smart appliances to speech recognition and planning under uncertainty. In this perspective, the principal contribution of fuzzy logic relates to its provision of a foundation for approximate reasoning, while neural network theory provides an effective methodology for learning from examples, and probabilistic reasoning systems furnish computationally effective techniques for representing and propagating probabilities and beliefs in complex inference networks. (Fuller, 1998.)

Soft computing methods has the characteristics of approximation and dispositionality. These methods do not compete with traditional quantitative methods. Leader selection process is a potential target for neural networks, as well as the interpretation of leadership profiles. There has been a initiative to utilize neural networks already in this study along traditional methods, and some preliminary results have been available. Thus, the systematic use of soft computing methods is a relevant task for further research.

11.2.5 Open and active interaction with scientific community

The close contact to the school around Bernard Bass and Bruce Avolio has offered a opportunity to participate in several international seminars and conferences during this research process. On these occasions, I have also presented some basic ideas about the new leadership training program in the FDF, including the DLM. These connections, supported by discussion via mail and e-mail, respond to the paradigmatic claim of open

and active interaction within a scientific community. The criticism, feedback and new ideas received through this interaction have had an important role in the whole research process.

In addition to the international network, I have participated twice in the main meetings of educational scientists on a national level. Also in these meetings I have presented the ideas of the new leadership training among some other issues, e.g. the evaluation and feedback system of the NDC. Beyond this level, I have had the opportunity to receive immediate feedback from thousands of vacant military instructors, company and battalion commanders, conscript and reservist leaders as well as civilian leadership consultants. I have been able to report a small part of this interaction, but the main body of this informal "lessons learned" information has been used directly in the current phase of the research process.

11.3 Synthesis

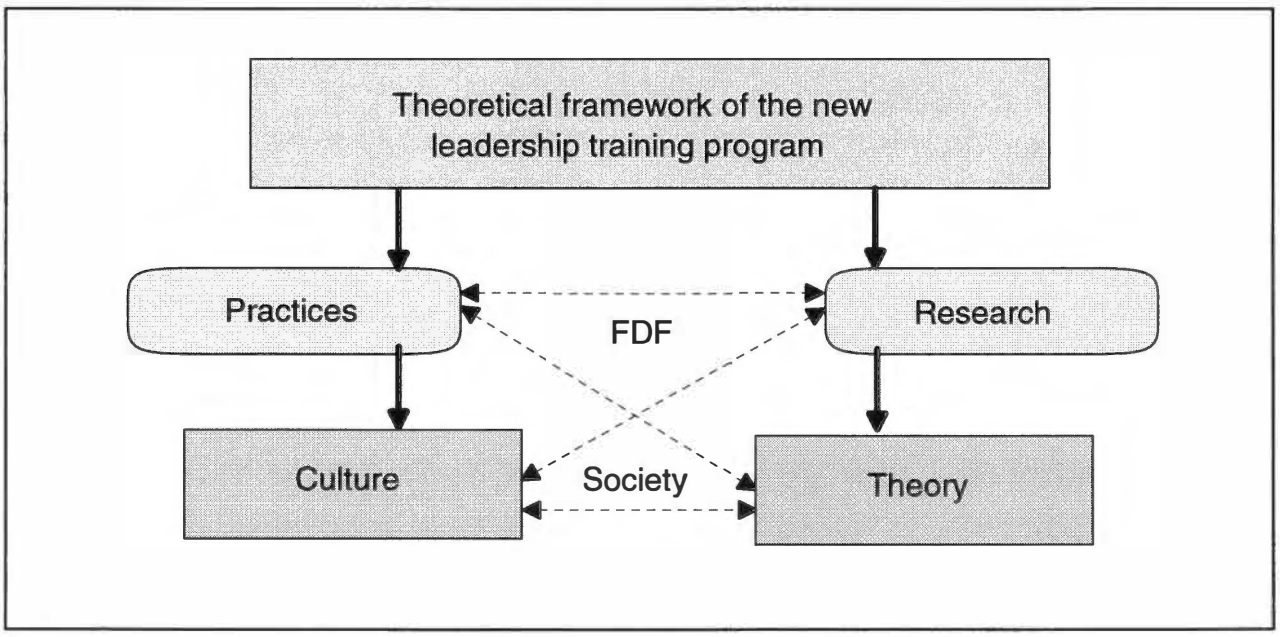


Figure 41. Synthesis

In my opinion, the theoretical framework of the new leadership training program will have a direct effect on both practises and research in this era, as seen in Figure 41. Indirectly the influence may be seen in the leadership culture of the FDF, and through conscript training even in the whole society.

The main focus of this research has been the formulation of the theoretical framework of the new leadership program in the FDF. On a level of scientific theory, also some elements and starting points for the constructive theory of leadership have been identified. On the level of theoretical frameworks, two essential frameworks have been defined and analyzed:

1. The general framework of leadership.
2. The constructivist framework for leadership behavior.

On the level of concepts, several core concepts have been studied and defined:

1. The concept of scientific paradigm.
2. The concept of military leadership.
3. The concept of individual potential.
4. The concept of leadership behavior.

On the level of models, two essential models have been created:

1. The conceptual model of military command.
2. The Deep Leadership Model (DLM), which has also been statistically tested.

On the level of measurement tools, a tool for evaluating personal leadership behavior has been developed and statistically tested. The tool - the Deep Leadership Questionnaire (DLQ) - has been built in an analogical process according to the respective models, concepts and frameworks. Even if it has not been the focus of this study, the new leadership training program in the FDF, with respective curricula, teaching materials, instructor guidance and technical support in the form of Rapid Data Analysis System (RDAS), is already operating on all levels of the FDF.

When combined into a total structure, the scientific tools listed above form the body of the theoretical framework. The critical constructivist approach is the spirit inside that body, which can make it alive and operationally effective. This is the basis of the synthesis described in Figure 41. In the following paragraps, I will shortly analyze and evaluate the effects of this research in the FDF and beyond.

The new leadership training program is a self-corrective process. In the military leadership and training practices, the new program is already operating on all levels of military education. Nation-wide feedback supports the conclusion that both conscripts and

instructors have accepted the new program. Feedback collected during many years in the NDC has been even more positive. Without an order, commanders in the field have started to use the tools of the new leadership training program when developing their personnel. In the long run, leadership training with the DLM can be a stimulus for a remarkable change in military leadership culture in the FDF. The way to permanent change in the military organizational culture is long, but it seems at least that there is some movement in the desired direction.

When it comes to the theoretical framework, this research is merely a basic research. Especially the DLQ will offer countless possibilities to different kinds of quantitative research settings, also with soft computing methods. The new paradigm of leadership will back up the unexperienced researchers in order to avoid the "theoretical desperation" in their studies. Beyond this level of research, the efforts of creating foundation for the constructive theory of leadership will continue. In deed, it would be very important to have research with some other paradigmatic (fenomenological, psychological, sociological) background concerning the new leadership training program and deep leadership.

More than ever, the FDF is and also wants to be an integrated and open part of the Finnish society and its educational systems. Through military service, almost 10 000 people move to the civilian society every year, taking their military education, personal experiences, leader portfolios, profiles and developmental plans with them. The new leadership training program of the FDF is externalized into society over a long time span. The transformation of the postmodern society will be derived partly from these principles, because there are no other places in society where to learn leadership on this scale. In a country like Finland, the leadership culture in a military organization is being reflected to the whole society.

Research-wise the effects of this research are a matter of question. As I have noticed, the new paradigm of leadership has not been studied in Finland very much. I do believe that the scientific interest towards the new paradigm of leadership will grow. One observation that supports this assumptions is that the needs as well as the experiences of some of the top business companies in Finland are favourable to the leadership training programs built on the principles reported here. The connection between scientific research and free economic resources is getting stronger. When speaking about leadership training, the representatives of working life are interested in the benefits they could obtain through such programs.

To understand leadership behavior is not enough for an effective leadership training program. The phenomenon of deep leadership must be converted into reasonable and trainable behaviors: it is then possible to start training and carry out research in this area (Bass 1998a). Supported by the respective frameworks, the DLM and respective feedback systems make it realistic to aim for development in the era of leadership. This is the main reason why a leadership training program built on these principles is, according to world-wide research, so competitive. When evaluated through the final outcomes in an organization, a program based on the theoretical framework of deep leadership has been shown to produce better learning results than the competitive programs. This is one reason why I believe that research on the new paradigm of leadership will expand in Finland.

11.4 On further research

The research in the era of leadership should be both deepened and expanded. A combined scientific interpretation on the basic assumptions of deep leadership and military pedagogy in the FDF would create more opportunities for the formation of the constructive theory of leadership. All possible research approaches and methods would enrich the content of the new leadership training program. Soft computing methods and, on the other hand, methodological triangulation in certain research settings are useful. There is almost an uncountable amount of possible approaches to research on leadership.

To convince those people who actually do not understand the reason for the new leadership training program in the FDF, it is essential to do research on the connection between deep leadership and organizational success. Success can be measured by learning or training results, economic facts, quality evaluations, unit performance, etc.

The reliability of the present version of the DLQ (version 8a99) can be enhanced through detailed analysis of the controlling and corrective leadership (CL) factor. The problems in this factor are probably due to the basic nature of this type of leadership: it must exist, but only in a proper amount. The items loading on the CL factor have to be formulated from the same point of view, having the same basic “mood” (negative, neutral, positive). The effectiveness of the new leadership training program is already under longitudinal follow-up study with true experimential research setting. Tommi Kinnunen will hopefully report the results in his forecoming research.

The critical constructivist approach and the different theories of learning are one key dimension of interest. *How does learning for leadership actually happen? How do individual differences and preferences affect learning results? Are the three main approaches (mind-, interaction-, and experience-centered) present in the learning process all the time, or in certain sequences and how do these approaches relate to each other? Does the universal nature of the phenomenon of excellent leadership behavior stem from mind-centered or interaction-centered approach?* There are a number of important questions to be answered.

In general, there are no issues in the field of leadership training that would not need to be studied in more detail. Thus, there are certain viewpoints that would require immediate efforts. In order to develop the whole system of conscript service, there is a need to validate the selection methods of conscript leaders through the criteria of the final performance evaluation. The collection of data for the purposes of this validation study could not be easier, because all the relevant information is saved in the same information system (VARTTI) in the FDF. This need stems from the fact that, according to my sample, about 10 % of squad leaders have a profile of a non-leader.

The cooperation between military and civilian researchers needs to be enhanced. In the era of leadership, the research resources in the FDF are quite poor, although the military training system could actually be a laboratory for this kind of research efforts. As it seems obvious that the interest towards the new paradigm of leadership will grow also outside the FDF, there will be plenty of opportunities for scientific cooperation. This progress could also create preconditions for a genuine Finnish military education system, starting from the fact that the FDF is an integrated, productive and developmental part of the society.

As we know, the success of a nation depends on the educational level of its members. Leadership is one the most important strategic factors of success in the modern world. Let us do more research and together educate deep leaders for tomorrow´s needs.

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APPENDIXES

SYVÄJOHTAMISEN KYSYMYSSARJA ©[1]

Vastaaminen tapahtuu nimettömänä käyttäen **LYIJYKYNÄÄ** optisesti luettavalle lomakkeelle. Arvioimasi henkilö odottaa sinulta rehellistä ja perusteltua palautetta voidakseen kehittyä johtajana. Ole hyvä ja vastaa huolellisesti. Tee myös merkintäsi huolellisesti, sillä luettavaksi kelpaamaton merkintä tai tyhjä rivi vääristää tulosta. **Tee merkintä niin, että mustaat lyijykynällä ruudun sisuksen**.

1. OLEN arvioitavan henkilön a) alainen b) vertainen c) esimies d) itsearvio
2. -10. Kohdat varattu henkilötunnisteille.

Käytä allaolevaa viisiportaista asteikkoa, kun vastaat seuraaviin kysymyksiin.

A=ei lainkaan
B=vain vähän
C=jonkin verran
D=usein
E=säännöllisesti (lähes aina)

Arvioimani henkilö...

11. on tehtävässään ammattitaitoinen
12. on luontaisesti lahjakas johtaja
13. toimii esimerkkinä alaisilleen
14. asettaa tarvittaessa ryhmän edun oman etunsa edelle
15. puhuu innostavasti tavoitteiden saavuttamisesta
16. etsii erilaisia näkökulmia ratkaistessaan ongelmia
17. ottaa huomioon muut tasavertaisina ihmisinä
18. kiinnittää kaiken huomionsa virheisiin ja syyllisten etsintään
19. jahkailee ja viivyttelee päätöksentekoa selvissäkin asioissa
20. lisää ihmisten halua yrittää enemmän
21. olen tyytyväinen hänen johtamistapaansa
22. saavuttaa tehokkaasti asetetut tavoitteet
23. on tiedoiltaan ja taidoiltaan hyvä johtaja
24. on pohjimmiltaan kyvykäs johtaja
25. kantaa vastuunsa vaikeissakin tilanteissa
26. osaa motivoida alaisiaan yhteisillä haasteilla ja tavoitteilla
27. suhtautuu avoimesti uusiin ajatuksiin ja toimintatapoihin
28. kuuntelee minua
29. tekee päätöksensä juurikaan muita kuulematta
30. jättää sovittuja asioita hoitamatta
31. reagoi hitaasti todella kiireellisiinkin asioihin
32. saa toisinaan alaisensa jopa ylittämään itsensä
33. olen tyytyväinen siitä että voin työskennellä juuri hänen kanssaan
34. saa aikaan erinomaisia tuloksia
35. innostaa ihmisiä omalla esimerkillään
36. löytää pulmatilanteisiin vaihtoehtoisia ratkaisuja
37. pitää huolta alaisistaan ja heidän tarpeistaan
38. uskoo asioiden sujuvan parhaiten vahvassa kontrollissaan
39. välttelee vastuutaan vaikeuksien ilmetessä
40. on aidosti kiinnostunut alaisestaan myös yksilönä

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[1] The questionnaire can be used without permission inside the Finnish Defence Forces and the Frontier Guard. Outside the Finnish Defence Forces, permission for the use of the questionnaire has to be requested from Vesa Nissinen (Copyright Act 404/61 and 897/80). Based on the agreement in the document PEkoul-os 141/5.7/D/I 4.6.1999.

THE DLQ AS A TOOL FOR THE DEVELOPMENT OF LEADERSHIP BEHAVIOR

1. THE STRUCTURE OF THE QUESTIONNAIRE

The questionnaire consists of 30 questions that measure:
- the potential and attributes of the leader
- leadership behavior
- the effects of leadership.

The potential and attributes of the leader measures:
- professional skills.

Leadership behavior measures the four cornerstones of deep leadership, which are:
- creation of trust snf confidence
- inspirational motivation
- intellectual stimulation
- individualized consideration.

Furthermore, leadership behavior measures two other ways of leadership:
- controlling and corrective leadership and
- passive leadership.

Outcomes measure three entities:
- efficiency
- extra effort
- satisfaction.

The questions are answered on a five point scalescale, points are given on the scale of 0 to 4. An optically readable general answer form is used for answering, from which data is transferred directly to the RDA system. The RDA system has a ready-made questionnaire with the help of which it is easy to print the previously mentioned entities.

2. THE DIMENSIONS TO BE MEASURED

2.1 The potential and attributes of a leader

The attributes of a leader refer to those innate (inherited) and learned features of one's personality that have been noted to be connected to success as a leader. Potential is often evaluated and spoken of especially in everyday situations rather comprehensively as, say, charisma or talent in leadership. This is a kind of an overall evaluation of the basic requirements related to leadership.

Professional skills mean the theoretical and practical potential shown by the leader in his work. Professional skills are centrally connected to military leadership and it creates a foundation for efficient training. However, professional skills alone do not guarantee good results, because the noted effects usually follow the level and direction of leaderhsip behavior.

2.2 Leadership behavior

The dimensions of deep leadership described here have been simplified so that it is possible to draw conclusions on each leader's own surroundings and style of leadership. On the background it is still wise to remember that deep leadership cannot be a separate or

formally learned style of leadership. Deep leadership works only when it or its cornerstones are a part of a natural and personal style of leadership. In that case the leader's personal human conception can be considered as the basis of everything (including development as a leader).

The deep leader's overall human conception is positive, constructive and emphasizes the willingness to grow. The typical thinking of the deep leader in relation to other people can be described with the following claims:

- a group is like its leader,
- people usually try to do their best, if they understand the goal of their activities,
- many individuals have skills and knowledge that I do not have,
- as human beings, we are all equal, and
- with his own coaching and encouragement, a leader can develop the professional skill and potential of his subordinates.

2.2.1 Building trust and confidence

The deep leader shows that he trusts his subordinates and offers a behavioral model to them. The leader is trusted, valued, respected and even admired. Subordinates often identify with this type of a leader. The leader can, when necessary, place the needs of his subordinates before his own. Risks are felt to be shared, because the leader can with his behavior create trust among the group he leads. Cohesion within the group increases. The ethical and moral foundation for leadership is strong. The leader uses his legitimate power rarely, and never to achieve benefits.

2.2.2 Inspirational motivation

The deep leader gets his subordinates to find new contents, features and challenges from their work. A positive outlook on the future and optimism strengthen the entire organization. The leader includes his subirdinates in the visioning of both long and short term goals. The leader can clearly draw together the demands of each individual's work, and creates commitment through shared goals and visions. Emotional encouragement is a part of this kind of behavior, of which it is typical that the leader manages to surprise his subordinates with his enthusiasm and activity over and over again. The leader emphasizes the significance of shared responsibility, shared goals and common trying. The inspiring leader can also use humor in his leadership and he is creative in developing new ways to motivate his subordinates.

2.2.3 Intellectual stimulation

The deep leader supports the innovativeness and creativity of his subordinates by questioning the basic assumptions, by seeking new solutions to problems and new viewpoints to work. Creativity is encouraged. An individual is not publicly punished for his mistakes; instead, mistakes are seen as learning opportunities associated with the trying out of new things. Subordinates are asked for ideas and they are included in problem solving processes. Subordinates are allowed to try out new solutions and they are not expected to always agree with the leader. The leader shows his appreciation for the knowledge and experience of each individual and attempts to fully put into good use the skills of his subordinates.

2.2.4 Individualized consideration

The deep leader is a good listener. He notices each individual's needs to grow and develop, working as a coach of some sort. There is an attempt to productively use the capability potential of subordinates and colleagues. In an encouraging atmosphere opportunities for the learning of new things are offered. Individual needs are concretely taken notice of, and the leader wants to participate in the solving of his subordinates' problems whenever it is necessary. It is evident in the leader's behavior that he accepts individual differences between people and he acts accordingly. Feedback is two-way and the leader spends a lot of time with his subordinates. Interaction is individual - the leader remembers earlier discussions, knows his subordinates personally and treats them as individuals, not solely as employees or subordinates. The leader delegates assignments to develop his subordinates and supports them in the performance of tasks. The deep leader is known for continuously taking care of his own group.

2.2.5 Controlling and corrective leadership

The controlling leader shows to his subordinates with his behavior that he believes things to turn out right only when he is there to supervise and correct mistakes. Encouraging and positive feedback is often forgotten, but if mistakes are made, the leader always finds a culprit and punishes accordingly. The leader also attempts to do as many things himself as possible, because he does not trust his subordinates' ability and willingness to handle the most demanding tasks.

2.2.6 Passive leadership

The passive leader mainly works alone. He does not want to take a stand especially in problem situations and does so only when he is forced to. The passive leader does not interact with people and is not even available; instead, he avoids responsibility and runs from potential problem situations. In such a case, leadership often slips to the responsibility of the unofficial leader inside the organization. The passive leader relies on things getting sorted out on their own, just like they have done in the past. "Time will take care of it" is his favorite saying. The passive leader is a real obstacle on the road to development, because to his subordinates he is a practical and lasting example of resistance to change.

2.3 Outcomes

The effects of leadership refer to changes in the efficiency and productivity of activities and in the group members' ways of thinking that are perceiveable from within the group as well as from the outside.

Efficiency manifests itself when set goals are achieved better than before or they are even surpassed. The most important factors that influence efficiency are the purposefulness of activities, the clarity of leaderhsip and naturally subordinates' commitment to shared goals.

Satisfaction is mainly an emotion-based conception of how the leader has fared in his duties and how his way of leadership corresponds to the needs and expectations of other people.

Extra effort describes the level of permanent commitment the leader has managed to create among the members of his group. Commitment to tasks, goal and one's own group

shows as an increase of "voluntary" work effort and the productivity of the work of the entire group.

3. USE OF THE DLQ

The purpose of the questionnaire is thus to produce information on the leadership behavior of the person being evaluated. The evaluation can be done by:

- subordinates,
- peers,
- superior (superiors),
- the person being evaluated.

This is thus a method with which an individual can obtain from his own area of operations a "full" (360 degrees) feedback. To add to the interpretation, the averages of an appropriate peer group can be used, in which case the person being evaluated can compare his own level with the average level of his peers.

3.1 Subordinate evaluation

In actual leadership, instructor and superior positions the feedback from subordinates is the most important part of the overall feedback. Because the optical reading of forms is easy and quick, it is practical to obtain subordinate evaluation from the entire group working under the person being evaluated. When going up the organization levels, it is necessary to apply the principle according to which the main group of those giving subordinate feedback represent direct subordinates of the superior (for example a battalion commander is evaluated primarily by company commanders). The most important thing is that the person doing the evaluation really knows the person he is evaluating. The evaluation is carried out anonymously.

3.2 Peer evaluation

Peer evaluation is carried out in the work community at the same level as the person being evaluated works on. With certain limitations, peers can include cooperation partners outside the actual work community or from interest groups who have acquired adequate knowledge of the person being evaluated by working together with him. It is appropriate to carry out peer evaluation as extensively as possible, like subordinate evaluation. Peer evaluation is carried ou anonymously.

3.3 Superior evaluation

Superior evaluation is carried out according to the current situation. Sometimes the person being evaluated may have more than one superior. All of them can do the evaluation (for example an officer cadet can be evaluated by several instructors and the company commander). In most cases there is only one superior. In superior evaluation the principle of anonymity is not realized, but on the other hand, the information produced by the deep leadership questionnaire is something that should be dealt with in discussions between a superior and his subordinate.

3.4 Self-evaluation

A self-evaluation as honest as possible gives a good basis for the interpretation of the actual feedback. When doing a self-evaluation one should not be concerned with the

question of "what would I want to be?" but concentrate honestly on "this is what I am right now".

3.5 Evaluation comparison and analysis

Comparison results mean a sample of other people performing the same task, or more accurately an average of this sample. Comparison results, like self-evaluation, provide a foundation for the evaluation of one's own leadership and help to put it in perspective in relation to others.

4. OBSERVATIONS ON DIFFERENT SOURCES OF FEEDBACK

After obtaining the feedback produced by the deep leadership questionnaire, an individual must, when analyzing the results, keep in mind the following general observations on the feedback:

- Self-evaluation, especially with male leaders, is often too positive compared to the evaluations of others (this fact also justifies the reason why feedback is needed in the first place).
- The level of the subordinate evaluation is often the lowest. The level of feedback is always influenced by the number of respondents (for example in relation to individual consideration) and the quality of the superior-subordinate -relationship (for example in recruit training it is impossible to strive for the same level of intellectual stimulation as when leading a group of experts).
- Peer evaluation is influenced also by the organization of tasks and responsibility in the work environment of the person being evaluated. It is normal that peers have expectations of the person being evaluated that have not surfaced in everyday work.
- A superior observes the person being evaluated from his perspective influenced by the carrying out of duties and overall productivity.

5. FOUNDATIONS FOR THE INTERPRETATION OF FEEDBACK OBTAINED

5.1 The interpretation of different dimensions

In the scale the minimum of points is 0 and the maximum is 4. It is possible to analyze also the standard deviation of the responses. It reveals to the analyst how unanimous the respondents were in their evaluations. For the evaluation of the deviations the following basis can be given:

- below 0,5	small deviation
- 0,5 - 1,0	normal deviation
- over 1,0	large deviation

5.2 Interpretation of the leadership profile

The leadership profile refers to the relationship between the dimensions of behavior and professional skills and outcomes. The leadership profile must always be interpreted in relation to the duties and operational environment of the person under-evaluation.

Of the dimensions of deep leadership, intellectual stimulation is the most closely connected to tasks. In the most typical leadership tasks it is not as important for the

efficient activity of a group as other dimensions according to preliminary results. On the other hand, in environments where experts are led and existing systems are being developed, intellectual stimulation may become the most important dimension productivity-wise. Intellectual stimulation is perhaps most clearly connected with a superior's conception of human beings: can your subordinates think, is it possible that they have ideas worth carrying out, can a good subordinate be critical?

6. DEVELOPMENT AS A LEADER

Study your own profile and its dimensions. Find your strengths and build your development on them. If you notice that in some dimensions you are placed below average or in the column "development need" in the chart included in the Appendix, you can begin analyzing your leadership through the following questions. The questions are related to leaderhsip behavior and they are in accordance with the deep leadership model. Based on the questions you can think about how to develop these qualifications where there are needs for improvement

6.1 Building trust and confidence

- ✓ Can I trust my subordinates?
- ✓ Have I shown in practice that I trust my subordinates?
- ✓ Am I a good example to my subordinates?
- ✓ Have I emphasized the importance of mutual trust as the basic requirement of efficient activity?

6.2 Inspirational motivation

- ✓ Do I always make clear the long and short term goals of our activities?
- ✓ Do I give a positive image of the future to my subordinates?
- ✓ Can I manage to be enthusiastic about and interested in my work?
- ✓ Is my subordinates' division of labor clear?
- ✓ Do I devote my time to thinking about new ways in which to encourage and motivate my subordinates?

6.3 Intellectual stimulation

- ✓ Do I use feedback for development purposes?
- ✓ Do I know how to handle critique and learn from it?
- ✓ Can I get my subordinates to think and consider various issues?
- ✓ Do I want to develop things and use other people's help in doing so?
- ✓ Do I crush new ideas immediately or do I take them into consideration?

6.4 Individualized consideration

- ✓ Do I know how to listen to other people?
- ✓ Do I care about the needs of other people?
- ✓ Am I interested in the problems of others and do I try to help in solving them?
- ✓ Have I shown my respect for other people no matter is what their training or position?
- ✓ Do I support my own subordinates, do I take responsibility for them?

6.5 Controlling and corrective leadership

- ✓ Do I spend my time doing the most important things or do I only attempt to find mistakes in my subordinates' work?
- ✓ Do I see mistakes as opportunities to lear or do I punish for them without further thinking?
- ✓ Do I focus on the essential, do I see the central goal of activities, do I guide others towards that goal?
- ✓ Can I make decisions quickly if needed and take swift action no matter what the issue?
- ✓ Are my professional skills adequate for the control of the entity?
- ✓ Do I also give positive feedback?

6.6 Passive leadership

- ✓ Do my subordinates ever see me?
- ✓ Do I lead actively or do I only wait for the emergence of mistakes or problems?
- ✓ Do I try to handle things quickly or do I let time handle them?
- ✓ Am I interested in my work, am I enthusiastic about it?
- ✓ Do I know how to take responsibility for my own actions and that of my subordinates?

Developing as a leader and changing leadership behavior is difficult and persistent. However, it will reward you greatly if you succeed. Make a clear decision if you notice a clear need for development in yourself. Focus on one thing at a time, keep it on your mind every day and act according to what you have decided. Remember that it is difficult for people who already know you to change their opinion, so do not get discouraged if results do not appear immediately in feedback; it will take time. Be humble before your development needs. Everyone can develop as a deep leader, i.e. a good military leader, if that is what one really wants...

DATA FREQUENCIES AS BAR CHARTS

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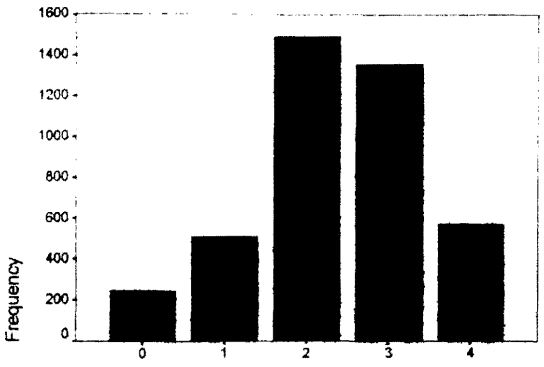

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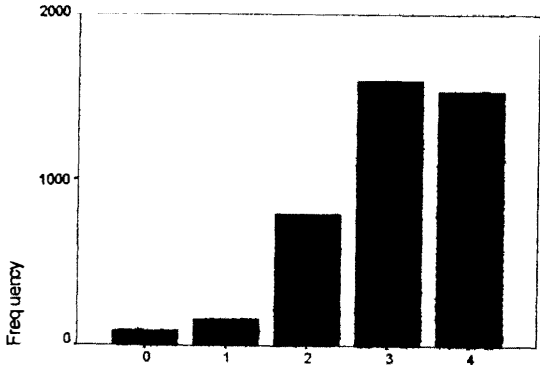

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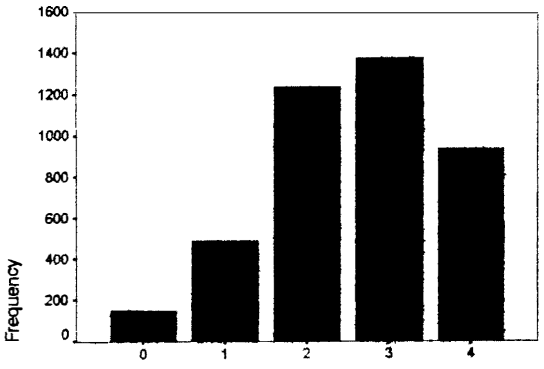

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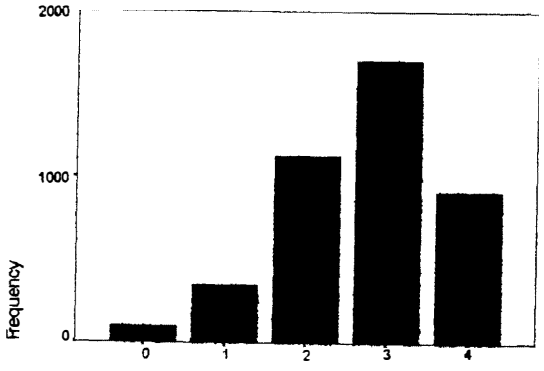

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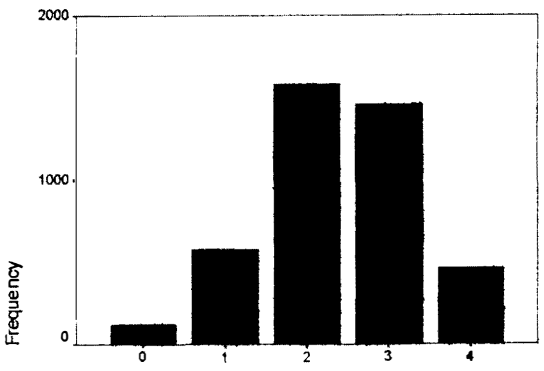

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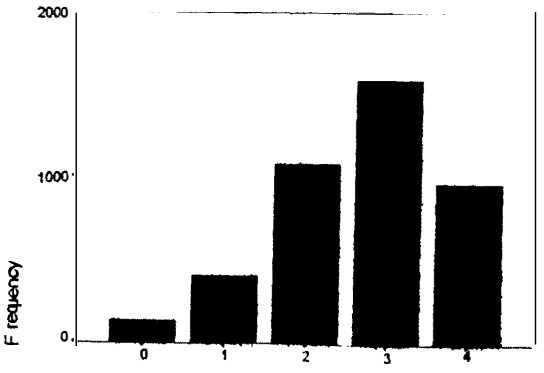

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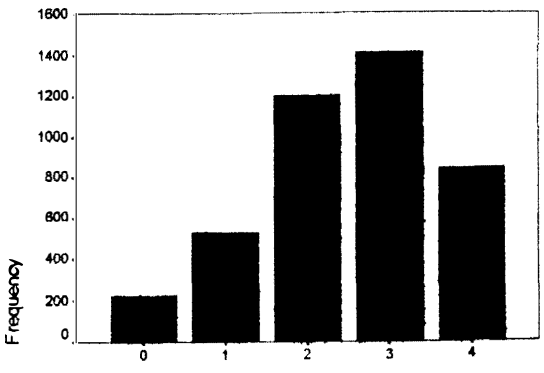

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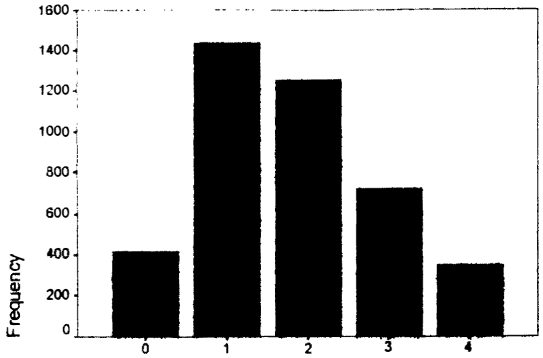

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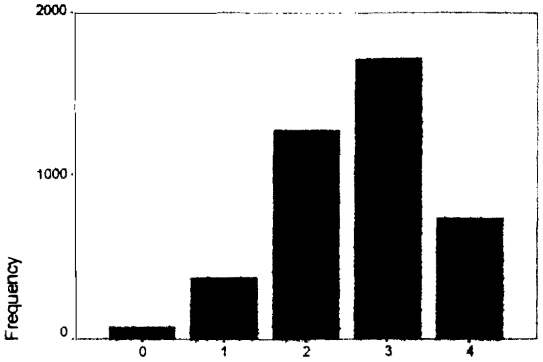

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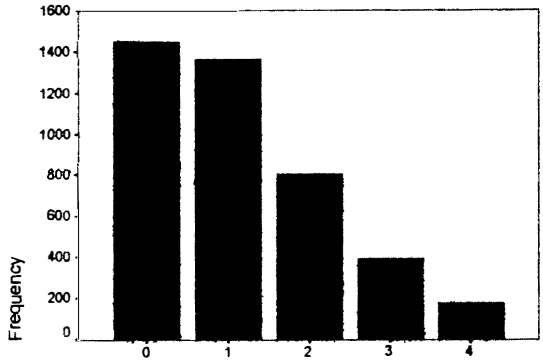

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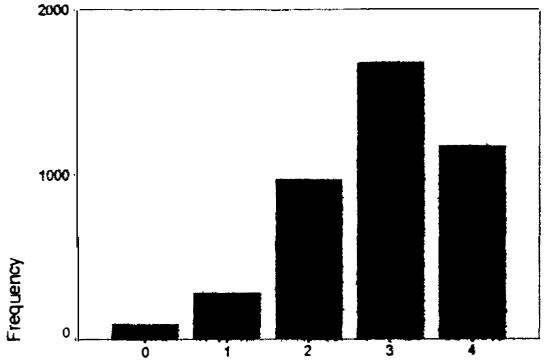

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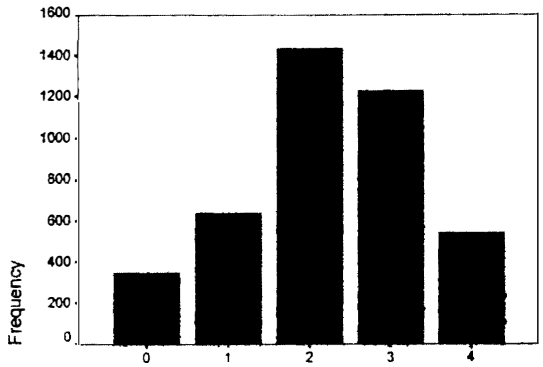

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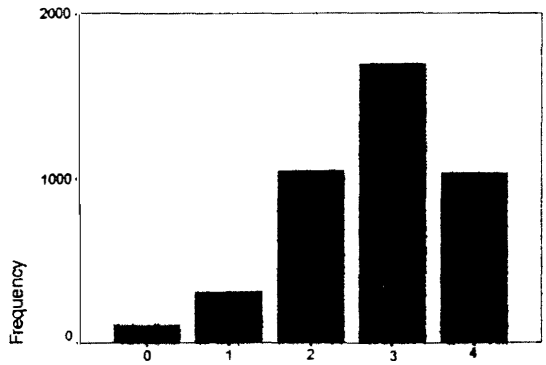

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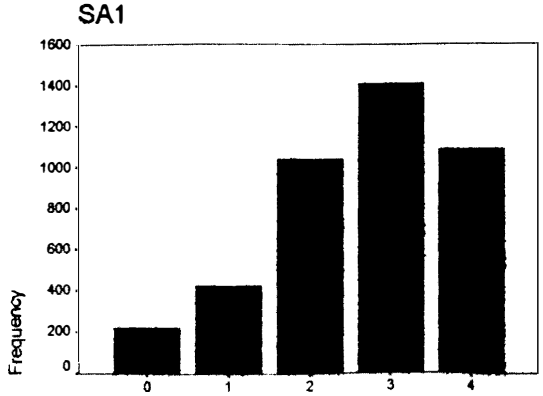

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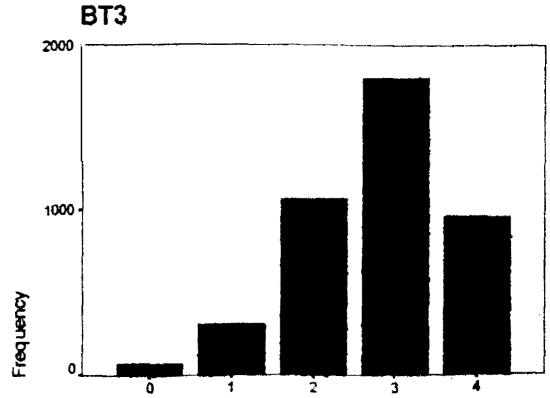

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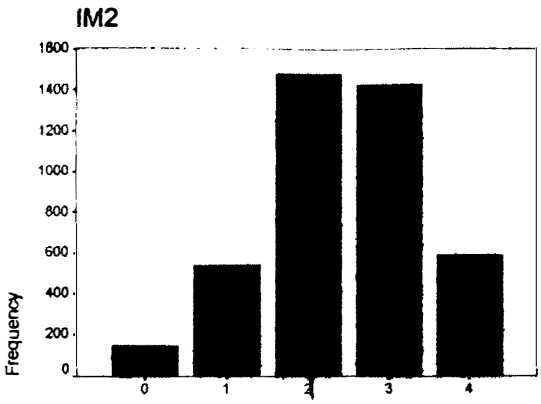
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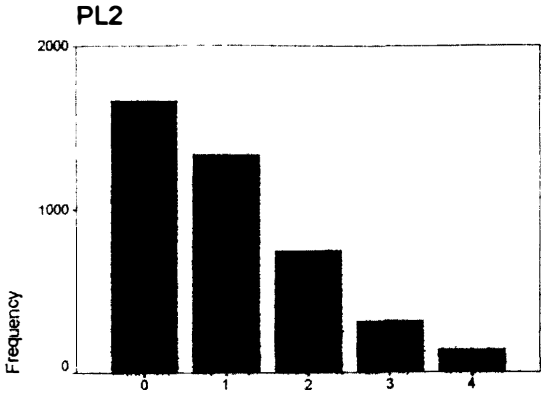
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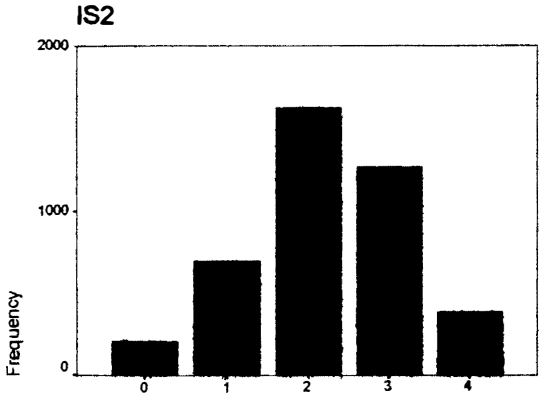
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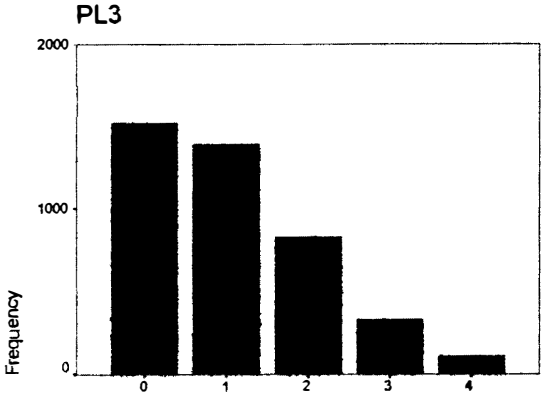
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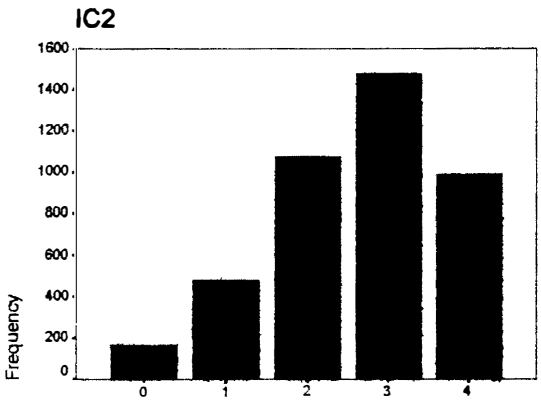
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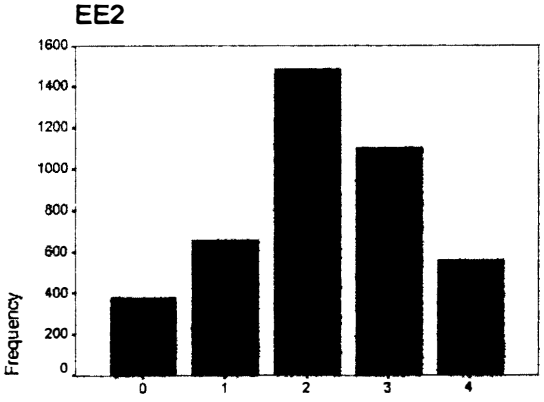
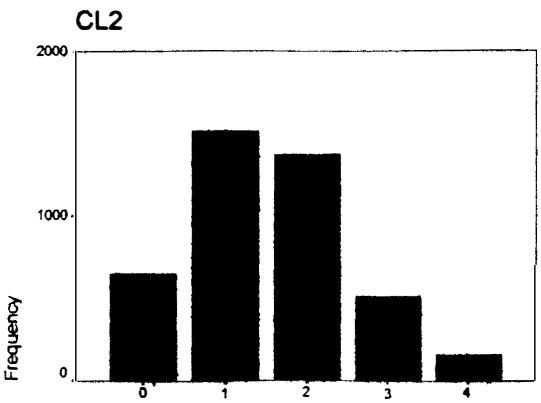
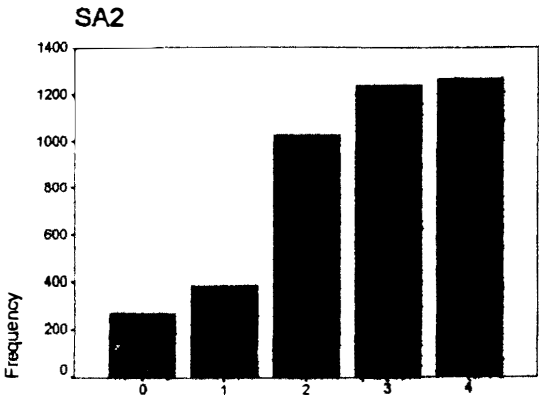
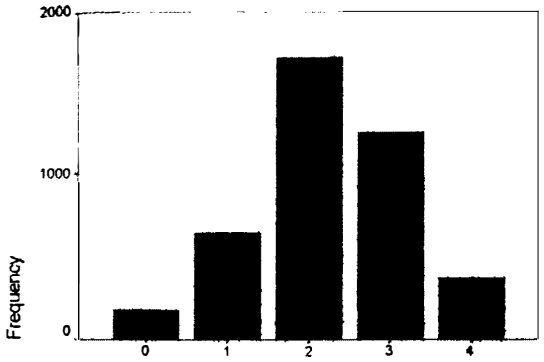
4
IC2


EE2
Frequency
1600
1400
1200
1000
800
600
400
200
0
0
1
2
3
4
EE2

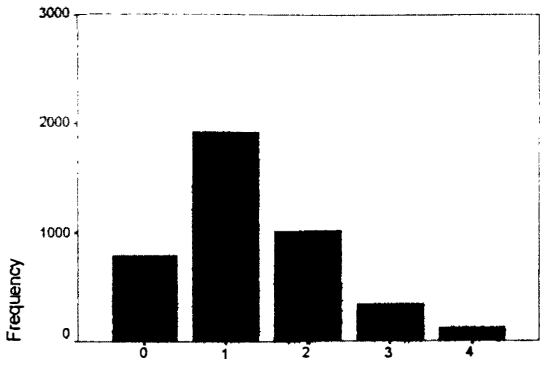

CL2
Frequency
2000
1000
0
0
1
2
3
4
CL2


SA2
Frequency
1400
1200
1000
800
600
400
200
0
0
1
2
3
4
SA2

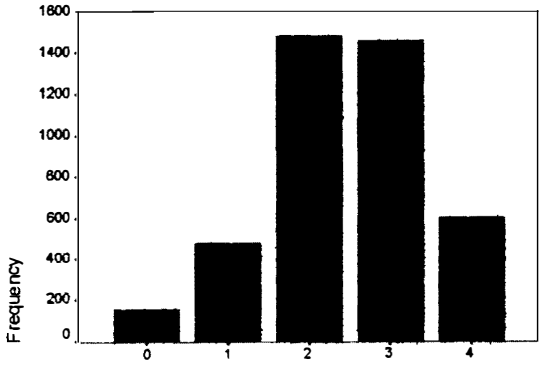
EF2



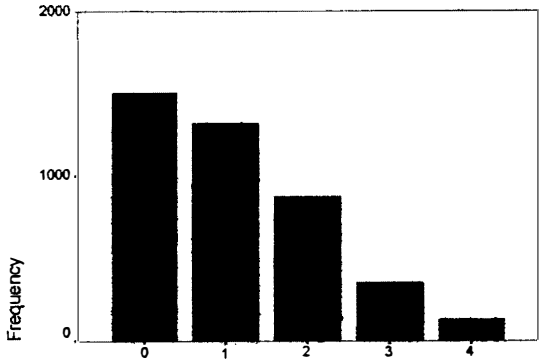
CL3



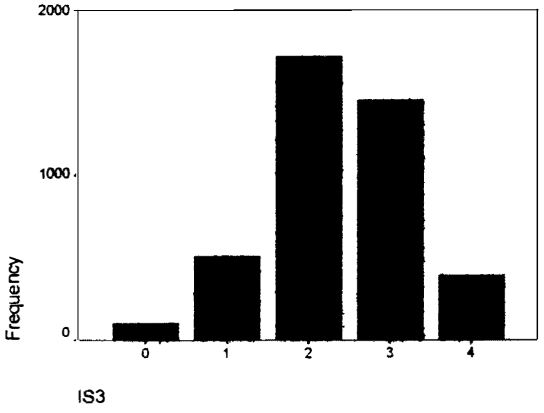
IM3



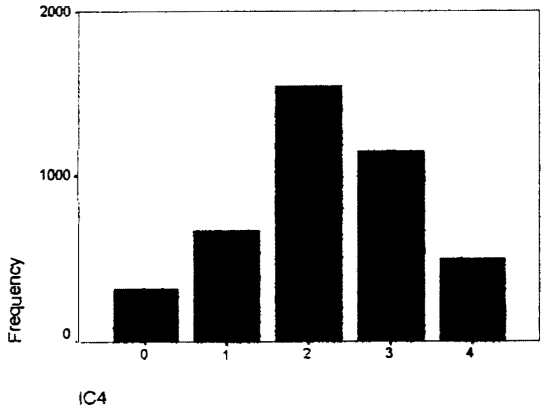
PL4



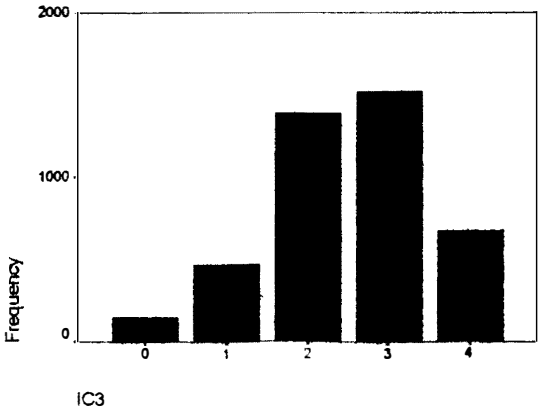
IS3



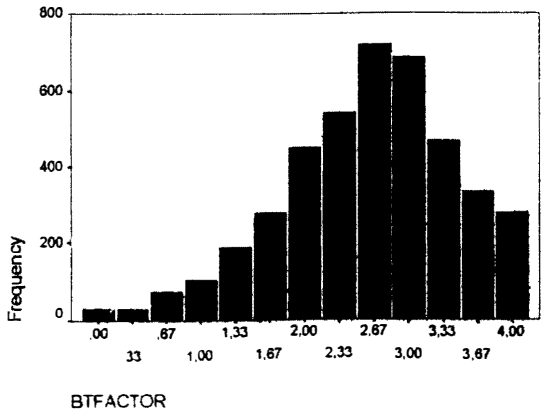
IC4



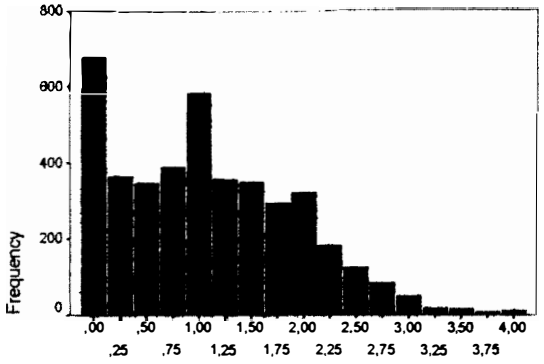
IC3



BTFACTOR

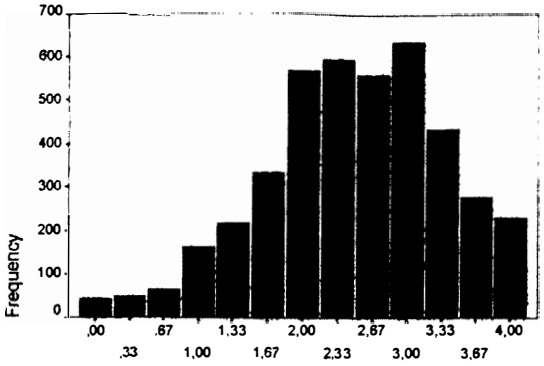


PLFACTOR



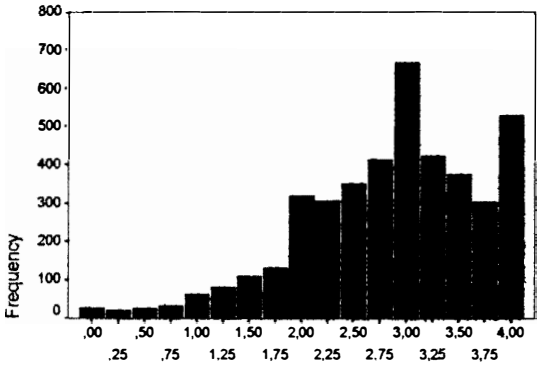
PLFACTOR

IMFACTOR



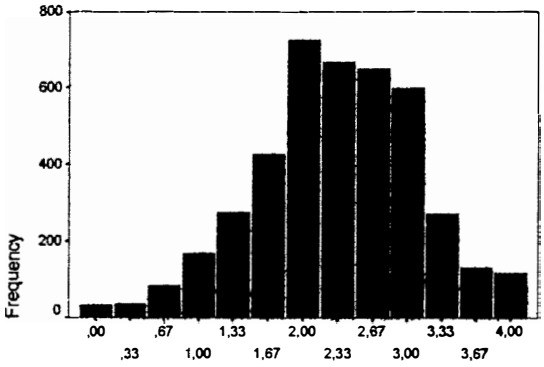
IMFACTOR

POFACTOR



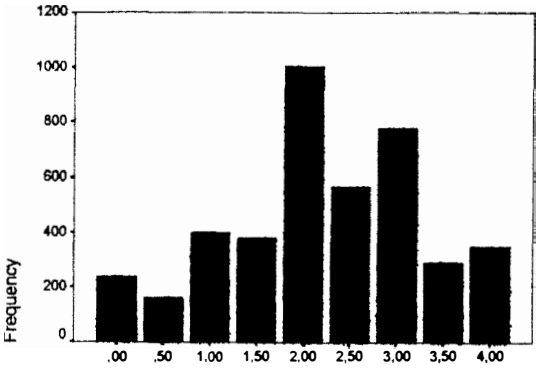
POFACTOR

ISFACTOR



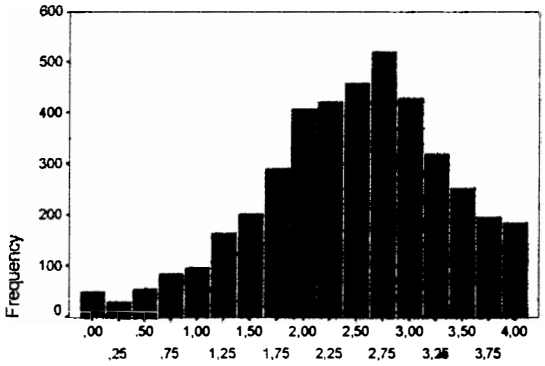
ISFACTOR

EEFACTOR



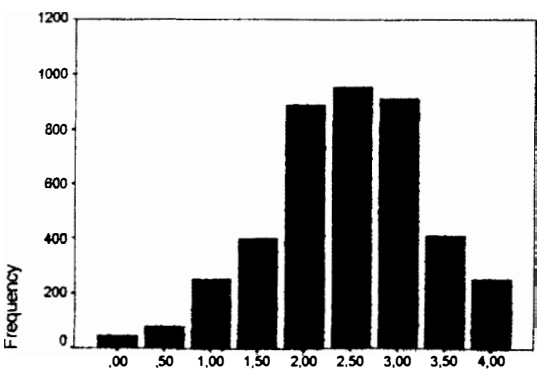
EEFACTOR

ICFACTOR



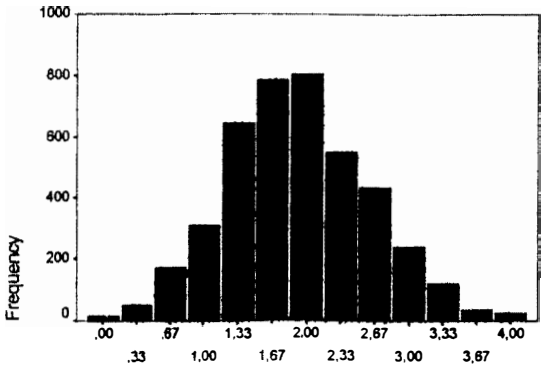
ICFACTOR

EFFACTOR



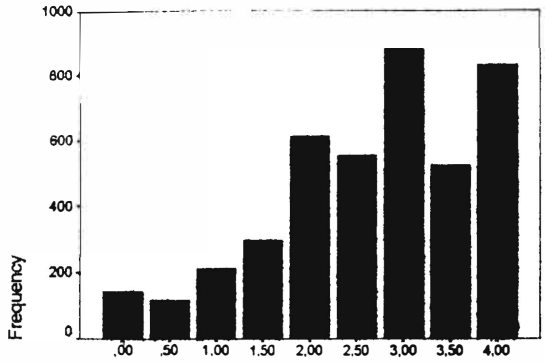
EFFACTOR

CLFACTOR

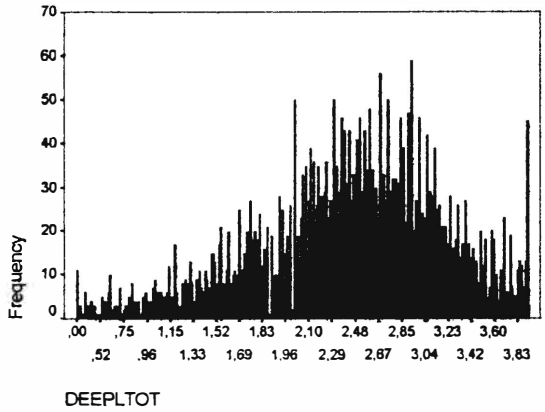


CLFACTOR

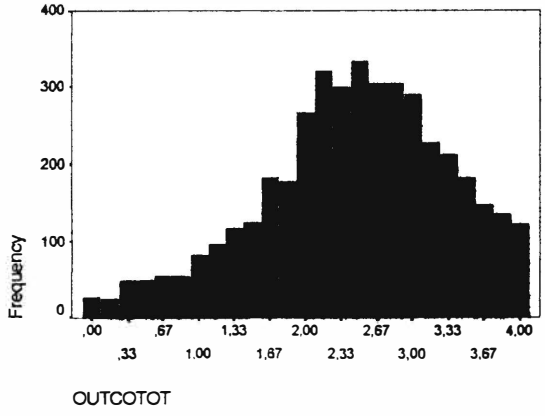
SAFACTOR



DEEPLTOT



OUTCOTOT



ITEM CORRELATIONS (n=4189)

Basic Data Single Item Pearson Correlations

	PO1	PO2	BT1	BT2	IM1	IS1	IC1	CL1
PO1	1,00							
PO2	0,72	1,00						
BT1	0,62	0,66	1,00					
BT2	0,48	0,52	0,57	1,00				
IM1	0,52	0,54	0,54	0,52	1,00			
IS1	0,46	0,49	0,50	0,50	0,52	1,00		
IC1	0,45	0,47	0,50	0,53	0,47	0,51	1,00	
CL1	-0,19	-0,17	-0,18	-0,20	-0,17	-0,12	-0,26	1,00
PL1	-0,35	-0,31	-0,28	-0,24	-0,24	-0,20	-0,23	0,26
EE1	0,49	0,55	0,55	0,51	0,55	0,50	0,51	-0,24
SA1	0,58	0,60	0,61	0,53	0,54	0,53	0,58	-0,32
EF1	0,59	0,59	0,57	0,47	0,53	0,50	0,46	-0,18
PO3	0,66	0,65	0,60	0,49	0,52	0,48	0,47	-0,22
PO4	0,66	0,70	0,62	0,50	0,53	0,50	0,50	-0,19
BT3	0,56	0,56	0,55	0,51	0,50	0,47	0,49	-0,19
IM2	0,49	0,51	0,51	0,49	0,60	0,48	0,48	-0,19
IS2	0,35	0,40	0,45	0,48	0,45	0,50	0,51	-0,19
IC2	0,42	0,43	0,46	0,46	0,44	0,45	0,59	-0,28
CL2	-0,13	-0,09	-0,08	-0,07	-0,08	-0,05	-0,10	0,25
PL2	-0,30	-0,26	-0,25	-0,21	-0,21	-0,17	-0,22	0,24
PL3	-0,32	-0,30	-0,26	-0,22	-0,22	-0,17	-0,23	0,21
EE2	0,46	0,52	0,53	0,49	0,53	0,48	0,49	-0,23
SA2	0,51	0,54	0,53	0,48	0,50	0,47	0,53	-0,32
EF2	0,48	0,52	0,52	0,47	0,49	0,46	0,44	-0,17
IM3	0,51	0,54	0,56	0,50	0,57	0,49	0,46	-0,17
IS3	0,44	0,47	0,48	0,46	0,46	0,55	0,47	-0,15
IC3	0,48	0,50	0,52	0,51	0,47	0,50	0,56	-0,24
CL3	-0,19	-0,15	-0,15	-0,13	-0,13	-0,10	-0,19	0,27
PL4	-0,28	-0,28	-0,24	-0,23	-0,22	-0,15	-0,23	0,25
IC4	0,39	0,44	0,48	0,47	0,46	0,46	0,54	-0,22

2(3)

PL1	EE1	SA1	EF1	PO3	PO4	BT3	IM2	IS2	IC2	CL2
1,00										
-0,23	1,00									
-0,32	0,64	1,00								
-0,34	0,56	0,61	1,00							
-0,36	0,53	0,63	0,65	1,00						
-0,35	0,55	0,65	0,65	0,74	1,00					
-0,34	0,48	0,55	0,57	0,60	0,62	1,00				
-0,23	0,59	0,55	0,54	0,50	0,54	0,49	1,00			
-0,14	0,48	0,52	0,41	0,39	0,42	0,42	0,49	1,00		
-0,25	0,49	0,59	0,46	0,48	0,48	0,45	0,44	0,54	1,00	
0,22	-0,07	-0,10	-0,07	-0,12	-0,11	-0,10	-0,05	-0,06	-0,12	1,00
0,45	-0,21	-0,29	-0,29	-0,32	-0,31	-0,29	-0,22	-0,13	-0,25	0,25
0,49	-0,23	-0,29	-0,29	-0,36	-0,33	-0,31	-0,22	-0,13	-0,24	0,24
-0,24	0,75	0,62	0,54	0,51	0,53	0,47	0,59	0,50	0,49	-0,08
-0,29	0,61	0,73	0,55	0,56	0,58	0,49	0,52	0,50	0,58	-0,13
-0,24	0,59	0,56	0,58	0,53	0,54	0,48	0,54	0,45	0,44	-0,06
-0,26	0,57	0,56	0,57	0,57	0,56	0,52	0,60	0,48	0,46	-0,06
-0,21	0,50	0,52	0,50	0,50	0,51	0,48	0,51	0,52	0,48	-0,05
-0,26	0,54	0,59	0,52	0,53	0,54	0,53	0,51	0,52	0,59	-0,10
0,34	-0,13	-0,22	-0,18	-0,22	-0,21	-0,18	-0,13	-0,09	-0,21	0,35
0,42	-0,20	-0,28	-0,26	-0,32	-0,30	-0,31	-0,20	-0,12	-0,24	0,25
-0,18	0,53	0,54	0,44	0,44	0,45	0,44	0,49	0,52	0,55	-0,05

3(3)

PL2	PL3	EE2	SA2	EF2	IM3	IS3	IC3	CL3	PL4	IC4
1,00										
0,53	1,00									
-0,22	-0,20	1,00								
-0,28	-0,28	0,62	1,00							
-0,19	-0,22	0,61	0,55	1,00						
-0,24	-0,26	0,59	0,53	0,57	1,00					
-0,18	-0,20	0,51	0,47	0,49	0,55	1,00				
-0,25	-0,25	0,55	0,58	0,53	0,54	0,56	1,00			
0,37	0,35	-0,14	-0,23	-0,12	-0,14	-0,12	-0,19	1,00		
0,45	0,44	-0,17	-0,26	-0,19	-0,24	-0,18	-0,26	0,42	1,00	
-0,17	-0,17	0,55	0,55	0,50	0,51	0,49	0,58	-0,13	-0,16	1,00

```
1
  EQS, A STRUCTURAL EQUATION PROGRAM                MULTIVARIATE SOFTWARE, INC.
  COPYRIGHT BY P.M. BENTLER                         VERSION 5.3 (C) 1985 - 1996.

    PROGRAM CONTROL INFORMATION

     1  /TITLE
     2  Valmiuden rakenneanalyysi
     3  /SPECIFICATIONS
     4   DATA='SJK5C98c.DAT'; VARIABLES= 46; CASES= 1317;
     5   METHODS=ML;
     6   MATRIX=RAW;
     7   MATRIX=RAW;
     8  /LABELS
     9  V1=AS1; V2=PA1; V3=IY1; V4=IT1; V5=KO1;
    10  V6=YH1; V7=LR1; V8=TY1; V9=TE1; V10=AS2;
    11  V11=TE2; V12=LR2; V13=IY2; V14=PA2; V15=YH2;
    12  V16=KO2; V17=TY2; V18=IT2; V19=LK1; V20=AT1;
    13  V21=JP1; V22=JP2; V23=AT2; V24=LK2; V25=JOHTPER;
    14  V26=AMMTAITO; V27=KYVYT; V28=LUOTTRAK; V29=INSTAMOT; V30=ALYSTIMU;
    15  V31=IHMYKSKO; V32=KONTRJOH; V33=PASSJOHT; V34=TEHOKKUU; V35=TYYTYVAI;
    16  V36=YRITHALU; V37=VALMIUS; V38=SYVAJOHT; V39=VAIKUTUS; V40=TULOKSEL;
    17  V41=TE1VERTA; V42=TE2VERTA; V43=SJRYHMA; V44=SJYKSIL+; V45=SJSOTA1;
    18  V46=SJSOTA2;
    19  /EQUATIONS
    20  V19 =  + *F1  + E19;
    21  V20 =  + *F1  + E20;
    22  V21 =  + *F1  + E21;
    23  V22 =  + *F1  + E22;
    24  V23 =  + *F1  + E23;
    25  V24 =  + *F1  + E24;
    26  /VARIANCES
    27  F1 = 1.00;
    28  E19 = *;
    29  E20 = *;
    30  E21 = *;
    31  E22 = *;
    32  E23 = *;
    33  E24 = *;
    34  /COVARIANCES
    35  /OUTPUT
    36   parameters;
    37   standard errors;
    38   listing;
    39   data='EQSOUT&.ETS';
    40  /END


       40 RECORDS OF INPUT MODEL FILE WERE READ
1
  TITLE:   Valmiuden rakenneanalyysi
  EQS/MAC-PPC 5.3                          SERIAL NUMBER: p5308771733063

  SAMPLE STATISTICS

                          UNIVARIATE STATISTICS
                          ---------------------

  VARIABLE          LK1        AT1        JP1        JP2        AT2
  MEAN              2.6674     3.1177     3.1321     2.9780     3.0630
  SKEWNESS (G1)     -.4253    -1.0102     -.9352     -.7814     -.9799
```

KURTOSIS (G2)	-.3377	.7728	.5030	.3640	.6957
STANDARD DEV.	1.0122	.9261	.9013	.9268	.9548

VARIABLE	LK2
MEAN	3.0251
SKEWNESS (G1)	-.8873
KURTOSIS (G2)	.3620
STANDARD DEV.	.9786

MULTIVARIATE KURTOSIS

MARDIA'S COEFFICIENT (G2,P) = 24.3920
NORMALIZED ESTIMATE = 45.1725

ELLIPTICAL THEORY KURTOSIS ESTIMATES

MARDIA-BASED KAPPA = .5082 MEAN SCALED UNIVARIATE KURTOSIS = .1311

MARDIA-BASED KAPPA IS USED IN COMPUTATION. KAPPA= .5082

CASE NUMBERS WITH LARGEST CONTRIBUTION TO NORMALIZED MULTIVARIATE KURTOSIS:

CASE NUMBER	27	49	303	563	1080
ESTIMATE	4533.0382	3136.0300	3189.6241	2979.9446	3940.4754

1
TITLE: Valmiuden rakenneanalyysi
EQS/MAC-PPC 5.3 SERIAL NUMBER: p5308771733063
COVARIANCE MATRIX TO BE ANALYZED: 6 VARIABLES (SELECTED FROM 46 VARIABLES)
BASED ON 1317 CASES.

		LK1 V 19	AT1 V 20	JP1 V 21	JP2 V 22	AT2 V 23
LK1	V 19	1.025				
AT1	V 20	.567	.858			
JP1	V 21	.318	.318	.812		
JP2	V 22	.490	.391	.499	.859	
AT2	V 23	.596	.616	.340	.449	.912
LK2	V 24	.644	.579	.324	.468	.682

		LK2 V 24
LK2	V 24	.958

BENTLER-WEEKS STRUCTURAL REPRESENTATION:

NUMBER OF DEPENDENT VARIABLES = 6
DEPENDENT V'S : 19 20 21 22 23 24

```
          NUMBER OF INDEPENDENT VARIABLES =  7
              INDEPENDENT F'S :     1
              INDEPENDENT E'S :    19   20   21   22   23   24


    3RD STAGE OF COMPUTATION REQUIRED    2150 WORDS OF MEMORY.
    PROGRAM ALLOCATE    100000 WORDS

    DETERMINANT OF INPUT MATRIX IS   0.24695D-01
1
    TITLE:   Valmiuden rakenneanalyysi
    EQS/MAC-PPC 5.3                              SERIAL NUMBER: p5308771733063
    MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)


    FOLLOWING TECHNICAL INFORMATION HAS BEEN STORED IN EQSOUT&.ETS



            PARAMETERS TO BE PRINTED ARE:

    E19,E19   E20,E20   E21,E21   E22,E22   E23,E23   E24,E24   V19,F1    V20,F1
    V21,F1    V22,F1    V23,F1    V24,F1

            NOTE: SAMPLE COVARIANCE MATRIX AND RESIDUAL MATRIX IN THIS
                  TECHNICAL OUTPUT HAVE BEEN ARRANGED IN THE SEQUENCE
                  OF ALL DEPENDENT VARIABLES FOLLOWED BY ALL INDEPENDENT
                  VARIABLES


                10 ELEMENTS OF MODEL STATISTICS, THEY ARE:

                      ESTIMATION METHOD (LS,GLS,ML,ELS,EGLS,ERLS,AGLS)
                      CONDITION CODE (0 FOR NORMAL CONDITION)
                      CONVERGENCE (0 FOR MODEL CONVERGED)
                      NULL MODEL CHI-SQUARE
                      MODEL CHI-SQUARE
                      DEGREES OF FREEDOM
                      PROBABILITY LEVEL
                      BENTLER-BONETT     NORMED FIT INDEX
                      BENTLER-BONETT NON-NORMED FIT INDEX
                      COMPARATIVE FIT INDEX

                12 ELEMENTS OF PARAMETER ESTIMATES
                12 ELEMENTS OF STANDARD ERRORS
                 1 LINES OF INFORMATION FOR DEPENDENT VARIABLES
                 1 LINES OF INFORMATION FOR INDEPENDENT VARIABLES

            OUTPUT FORMAT FOR INFORMATION SECTION IS: (8E16.8)

            TOTAL NUMBER OF LINES PER SET OF INFORMATION IS:      7
1
    TITLE:   Valmiuden rakenneanalyysi
    EQS/MAC-PPC 5.3                              SERIAL NUMBER: p5308771733063
    MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

    PARAMETER ESTIMATES APPEAR IN ORDER,
    NO SPECIAL PROBLEMS WERE ENCOUNTERED DURING OPTIMIZATION.


    RESIDUAL COVARIANCE MATRIX  (S-SIGMA) :

                          LK1         AT1         JP1         JP2         AT2
                          V 19        V 20        V 21        V 22        V 23
```

LK1	V 19	0.000				
AT1	V 20	.009	0.000			
JP1	V 21	-.026	-.009	0.000		
JP2	V 22	.036	-.039	.233	0.000	
AT2	V 23	-.027	.025	-.026	-.032	0.000
LK2	V 24	.016	-.016	-.043	-.016	.017

		LK2 V 24
LK2	V 24	0.000

AVERAGE ABSOLUTE COVARIANCE RESIDUALS = .0272
AVERAGE OFF-DIAGONAL ABSOLUTE COVARIANCE RESIDUALS = .0381

STANDARDIZED RESIDUAL MATRIX:

		LK1 V 19	AT1 V 20	JP1 V 21	JP2 V 22	AT2 V 23
LK1	V 19	0.000				
AT1	V 20	.009	0.000			
JP1	V 21	-.029	-.011	0.000		
JP2	V 22	.038	-.046	.279	0.000	
AT2	V 23	-.028	.028	-.030	-.036	0.000
LK2	V 24	.017	-.017	-.049	-.017	.019

		LK2 V 24
LK2	V 24	0.000

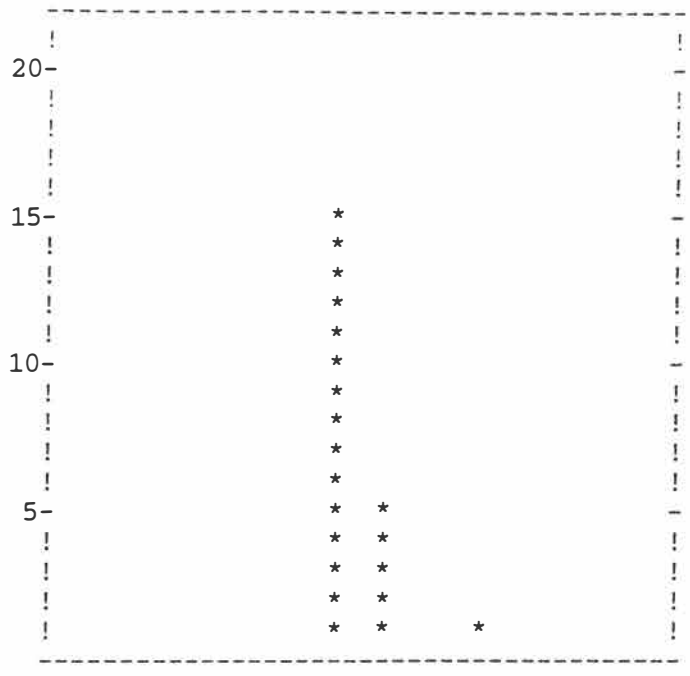
AVERAGE ABSOLUTE STANDARDIZED RESIDUALS = .0311
AVERAGE OFF-DIAGONAL ABSOLUTE STANDARDIZED RESIDUALS = .0436

1
TITLE: Valmiuden rakenneanalyysi
EQS/MAC-PPC 5.3 SERIAL NUMBER: p5308771733063
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

LARGEST STANDARDIZED RESIDUALS:

V 22,V 21	V 24,V 21	V 22,V 20	V 22,V 19	V 23,V 22
.279	-.049	-.046	.038	-.036
V 23,V 21	V 21,V 19	V 23,V 20	V 23,V 19	V 24,V 23
-.030	-.029	.028	-.028	.019
V 24,V 22	V 24,V 20	V 24,V 19	V 21,V 20	V 20,V 19
-.017	-.017	.017	-.011	.009
V 21,V 21	V 22,V 22	V 23,V 23	V 19,V 19	V 20,V 20
0.000	0.000	0.000	0.000	0.000

DISTRIBUTION OF STANDARDIZED RESIDUALS



	RANGE			FREQ	PERCENT
1	-0.5	-	--	0	.00%
2	-0.4	-	-0.5	0	.00%
3	-0.3	-	-0.4	0	.00%
4	-0.2	-	-0.3	0	.00%
5	-0.1	-	-0.2	0	.00%
6	0.0	-	-0.1	15	71.43%
7	0.1	-	0.0	5	23.81%
8	0.2	-	0.1	0	.00%
9	0.3	-	0.2	1	4.76%
A	0.4	-	0.3	0	.00%
B	0.5	-	0.4	0	.00%
C	++	-	0.5	0	.00%
	TOTAL			21	100.00%

EACH "*" REPRESENTS 1 RESIDUALS

1
TITLE: Valmiuden rakenneanalyysi
EQS/MAC-PPC 5.3 SERIAL NUMBER: p5308771733063
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE = 4048.272 ON 15 DEGREES OF FREEDOM

INDEPENDENCE AIC = 4018.27162 INDEPENDENCE CAIC = 3925.52495
MODEL AIC = 324.12238 MODEL CAIC = 268.47437

CHI-SQUARE = 342.122 BASED ON 9 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN 0.001
THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS 318.256.

BENTLER-BONETT NORMED FIT INDEX= .915
BENTLER-BONETT NONNORMED FIT INDEX= .862
COMPARATIVE FIT INDEX (CFI) = .917

ITERATIVE SUMMARY

ITERATION	PARAMETER ABS CHANGE	ALPHA	FUNCTION
1	.371307	1.00000	.32543
2	.041926	1.00000	.26256
3	.008002	1.00000	.26006
4	.001490	1.00000	.25997
5	.000326	1.00000	.25997

1
TITLE: Valmiuden rakenneanalyysi
EQS MAC-PPC 5.3 SERIAL NUMBER: p5308771733063

MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

MEASUREMENT EQUATIONS WITH STANDARD ERRORS AND TEST STATISTICS

```
LK1    =V19 =    .767*F1    + 1.000 E19
                   .025
                 31.193

AT1    =V20 =    .727*F1    + 1.000 E20
                   .022
                 32.848

JP1    =V21 =    .449*F1    + 1.000 E21
                   .024
                 18.409

JP2    =V22 =    .592*F1    + 1.000 E22
                   .024
                 24.790

AT2    =V23 =    .813*F1    + 1.000 E23
                   .022
                 37.090

LK2    =V24 =    .818*F1    + 1.000 E24
                   .023
                 36.035
```

1
TITLE: Valmiuden rakenneanalyysi
EQS/MAC-PPC 5.3 SERIAL NUMBER: p5308771733063
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

VARIANCES OF INDEPENDENT VARIABLES

V		F	
F1	- F1		1.000

1
TITLE: Valmiuden rakenneanalyysi
EQS/MAC-PPC 5.3 SERIAL NUMBER: p5308771733063
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

VARIANCES OF INDEPENDENT VARIABLES

E		D
E19	- LK1	.437*
		.020
		21.681
E20	- AT1	.329*
		.016
		20.885
E21	- JP1	.610*
		.025
		24.696

```
                                    I                                   I
E22 -  JP2                        .509*I                                I
                                  .022 I                                I
                                23.652 I                                I
                                    I                                   I
E23 -  AT2                        .250*I                                I
                                  .014 I                                I
                                17.767 I                                I
                                    I                                   I
E24 -  LK2                        .289*I                                I
                                  .015 I                                I
                                18.724 I                                I
                                    I                                   I
1
  TITLE:   Valmiuden rakenneanalyysi
  EQS/MAC-PPC 5.3                                SERIAL NUMBER: p5308771733063
  MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)


  STANDARDIZED SOLUTION:



   LK1    =V19 =    .758*F1     + .653 E19
   AT1    =V20 =    .785*F1     + .619 E20
   JP1    =V21 =    .499*F1     + .867 E21
   JP2    =V22 =    .638*F1     + .770 E22
   AT2    =V23 =    .852*F1     + .524 E23
   LK2    =V24 =    .836*F1     + .549 E24
```

E N D O F M E T H O D

```
1
  Execution begins at 15:05:22
  Execution ends   at 15:05:24
  Elapsed time =       2.00 seconds
```

RELIABILITY ANALYSIS - SCALE (ALPHA) - DEEP LEADERSHIP FACTORS

		Mean	Std Dev	Cases
1.	BTFACTOR	2,5650	,5652	241,0
2.	IMFACTOR	2,4186	,5826	241,0
3.	ISFACTOR	2,3090	,4864	241,0
4.	ICFACTOR	2,4522	,5836	241,0

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	261,5292	240	1,0897		
Within People	43,1887	723	,0597		
Between Measures	8,0320	3	2,6773	54,8311	,0000
Residual	35,1567	720	,0488		
Total	304,7179	963	,3164		
Grand Mean	2,4362				

Intraclass Correlation Coefficient

Two-Way Mixed Effect Model (Consistency Definition):
People Effect Random, Measure Effect Fixed
Single Measure Intraclass Correlation = ,8420*
95,00% C.I.: Lower = ,8117 Upper = ,8693
F = 22,3169 DF = (240, 720,0) Sig. = ,0000 (Test Value = ,0000)
Average Measure Intraclass Correlation = ,9552**
95,00% C.I.: Lower = ,9452 Upper = ,9638
F = 22,3169 DF = (240, 720,0) Sig. = ,0000 (Test Value = ,0000)
*: Notice that the same estimator is used whether the interaction effect is present or not.
**: This estimate is computed if the interaction effect is absent, otherwise ICC is not estimable.

Reliability Coefficients

N of Cases = 241,0 N of Items = 4

Alpha = ,9552

RELIABILITY ANALYSIS - SCALE (ALPHA) - OUTCOME FACTORS

		Mean	Std Dev	Cases
1.	EFFACTOR	2,3978	,5608	241,0
2.	SAFACTOR	2,6242	,7135	241,0
3.	EEFACTOR	2,1810	,6584	241,0

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	265,2311	240	1,1051		
Within People	60,1457	482	,1248		
Between Measures	23,6769	2	11,8385	155,8173	,0000
Residual	36,4687	480	,0760		
Total	325,3768	722	,4507		
Grand Mean	2,4010				

Intraclass Correlation Coefficient

Two-Way Mixed Effect Model (Consistency Definition):
People Effect Random, Measure Effect Fixed
Single Measure Intraclass Correlation = ,8187*
95,00% C.I.: Lower = ,7814 Upper = ,8514
F = 14,5457 DF = (240, 480,0) Sig. = ,0000 (Test Value = ,0000)
Average Measure Intraclass Correlation = ,9313**
95,00% C.I.: Lower = ,9147 Upper = ,9450
F = 14,5457 DF = (240, 480,0) Sig. = ,0000 (Test Value = ,0000)
*: Notice that the same estimator is used whether the interaction effect is present or not.
**: This estimate is computed if the interaction effect is absent, otherwise ICC is not estimable.

Reliability Coefficients

N of Cases = 241,0 N of Items = 3

Alpha = ,9313

INDIVIDUAL LEADERSHIP PROFILES IN THE DATA

SQUAD LEADERS (N = 99)

	PO	BT	IM	IS	IC	CL	PL	EF	SA	EE	DL	OC
1	2,78	2,73	2,8	2,77	2,78	1,47	0,83	2,35	2,79	2,42	2,77	2,52
2	3,3	3,23	3,17	2,7	2,98	1,5	0,75	3,05	3,05	2,7	3,02	2,93
3	3,15	3,13	3,03	2,8	2,8	1,13	0,7	3,05	3,4	3,1	2,94	3,18
4	3,14	3,15	2,93	2,38	2,78	1,48	0,44	2,61	3,28	2,78	2,81	2,89
5	2,95	2,69	2,69	2,59	2,73	1,09	0,45	2,82	3,14	2,76	2,68	2,91
6	2,9	2,67	2,41	2,67	2,9	1,33	0,55	2,6	2,9	2,42	2,66	2,64
7	1,71	1,71	1,43	1,67	1,25	2,9	1,68	1,36	0,79	1,14	1,52	1,1
8	2,97	2,75	3,09	2,71	2,5	1,46	1,16	2,81	2,88	2,75	2,76	2,81
9	2,56	2,54	2,5	2,58	3,22	1,21	1,13	2,31	3,38	2,63	2,71	2,77
10	3	3,05	2,69	2,82	2,96	1,53	0,94	2,88	3,23	2,88	2,88	3
11	2,91	2,87	2,83	2,57	2,91	0,92	0,48	2,63	2,81	2,44	2,8	2,63
12	3,09	2,55	2,13	2,14	2,56	1,48	0,55	2,18	2,64	1,62	2,35	2,15
13	2,28	1,96	2,15	1,81	2	1,63	1,33	1,78	1,67	1,44	1,98	1,63
14	2,57	2,33	2,26	2,19	2,5	1,39	0,64	2,21	2,46	2,11	2,32	2,26
15	2,63	2,5	2,5	2,43	2,47	1,55	1,03	2,25	2,55	2,35	2,48	2,38
16	2,81	2,18	2,44	1,96	2,49	1,62	0,97	2,5	2,76	1,72	2,27	2,33
17	3,07	2,74	2,42	2,42	2,81	1,25	0,8	2,45	2,82	1,82	2,6	2,36
18	1,93	1,62	1,58	1,73	1,53	1,89	1,43	2,03	1,87	0,87	1,62	1,59
19	2,55	1,93	2,04	1,67	1,56	1,89	1,19	2,06	1,81	1,42	1,8	1,76
20	2,1	1,62	1,82	1,69	1,42	1,9	1,62	1,88	1,23	1	1,64	1,37
21	1,54	1,11	1,84	1,9	1,41	2,05	1,74	1,69	1,23	1,54	1,57	1,49
22	2,71	2,83	2,67	2,25	2,52	1,53	1,22	2,67	3,42	2,83	2,57	2,97
23	2,21	2,05	2,33	2,55	2,5	1,74	1,76	2,23	2,71	1,86	2,36	2,27
24	2,33	2,33	1,67	2,67	2,75	1	1,25	1,5	3,33	0,67	2,36	1,83
25	2,21	2,39	1,72	1,67	2,08	1,39	1,33	1,92	2,25	1,67	1,97	1,95
26	2,25	2,54	2,04	2,17	2,84	1,29	1,09	2,38	2,75	2,19	2,4	2,44
27	2,41	2,71	2,54	2,21	2,13	1,52	1,5	2,56	2,13	2,25	2,4	2,31
28	2,63	2,38	2,19	2,38	2,68	1,19	1,07	2	2,77	2,14	2,41	2,3
29	2,47	2,26	1,93	2,59	2,5	1,42	1,47	1,72	3	1,5	2,32	2,07
30	1,75	1,57	1,57	1,52	2,18	1,43	1,86	1,57	1,71	1,64	1,71	1,64
31	3,21	2,81	2,52	2,14	2,04	1,52	0,96	2,57	2,93	2,43	2,38	2,64
32	2,67	2,44	2,61	2,78	3,13	1,28	1,13	2,75	3,33	2,42	2,74	2,83
33	2,82	2,62	2,29	2,38	2,93	1	1,22	2,29	3,14	1,85	2,56	2,43
34	2,8	2,87	2,47	2,6	2,9	0,8	1,2	2,4	3,6	2,8	2,71	2,93
35	3,5	3,61	3,5	3,33	3,82	0,28	0,46	3,33	3,75	3,42	3,57	3,5
36	3,31	3,25	3	3,17	3,19	2,17	1,63	3,38	3,5	3	3,15	3,29
37	1,07	1,09	1	1,08	0,81	2,25	1,75	1,13	0,63	0,5	1	0,75
38	3,3	3,33	3,27	3,33	3,75	0,87	0,21	3,2	4	3,3	3,42	3,5
39	2,75	2,5	2,33	2,25	2,69	1,25	1,07	2,5	2,88	2,63	2,44	2,67
40	2,18	2,11	1,88	1,78	2,27	1,88	1,58	2	2,17	1,83	2,01	2
41	2,17	2,11	1,5	2	2,35	0,94	1,32	1,64	2,33	1,64	1,99	1,87
42	2,48	2,53	2,86	2,61	2,96	1,61	1,2	2,38	2,92	2,31	2,74	2,54
43	1,45	1,67	1,33	1,36	1,6	1,87	2,11	1,4	1,6	0,8	1,49	1,27
44	2,42	2,47	2,4	2,33	2,42	2,21	2	2,6	2,6	2,11	2,41	2,44
45	0,83	0,33	0,56	0,56	1,09	1,33	2,08	0,5	0,33	0,33	0,64	0,39
46	1,42	1,33	1	1,56	1,25	1,22	1,08	1,33	1,17	1	1,29	1,17
47	2,06	2,17	1,83	2	1,56	1,64	0,69	1,5	1,88	1	1,89	1,46
48	2,69	2,82	2,4	2,33	2	2,18	2,06	2,38	2,38	2	2,39	2,25
49	1,65	1,53	1,4	1,53	1	2	1,7	1,5	1,2	0,9	1,37	1,2
50	1,58	1,33	1,22	1,67	1,83	1,78	1,17	1	1,5	1	1,51	1,17
51	2,33	2,33	2,11	2,33	3	1	0,92	2,5	3,17	2,5	2,44	2,72
52	2,19	2,42	1,42	1,75	2,31	1,75	1,94	1,63	1,63	2	1,98	1,75
53	2,55	2,52	2,3	2,09	2,39	1,39	0,89	2,05	3,05	2,18	2,33	2,43
54	2,92	2,5	2,61	2,28	2,38	1,72	1,71	2,58	2,42	2,25	2,44	2,42

55	2,68	2,73	2,42	2,3	2,5	1,45	0,98	2,27	3	2,36	2,49	2,54
56	2,29	2,17	2,39	2,33	2,33	1,72	1,5	2,5	2,25	1,92	2,31	2,22
57	0,61	0,86	0,67	0,86	0,57	2,48	2,5	0,64	2,9	0,5	0,74	1,35
58	2,69	2,63	2,28	2,38	2,25	1,88	0,97	2,06	2,25	2,06	2,38	2,12
59	2,86	3	2,43	2,38	2,32	1,14	0,29	2,43	2,86	2	2,53	2,43
60	2,47	2,33	1,96	2,08	1,97	1,95	1,16	1,81	2,06	1,44	2,09	1,77
61	2,46	2,19	2,19	2,33	2,11	1,71	1	2,36	2,5	1,86	2,21	2,24
62	3,14	3,1	2,71	2,76	2,68	1,14	0,25	2,57	3,29	2,29	2,81	2,72
63	2,55	1,93	2,07	2,05	2,23	1,7	1,22	1,97	2,13	1,59	2,07	1,9
64	2,34	1,76	2	2,16	2,36	1,24	0,93	2,14	2,82	1,55	2,07	2,17
65	2,97	2,62	2,44	2,46	2,78	1,61	1,39	1,94	3	2	2,58	2,31
66	3,01	2,82	2,6	2,5	2,62	1,53	0,72	2,48	2,79	2	2,64	2,42
67	2,81	2,69	2,25	2,28	2,98	1,34	0,85	2,54	3,21	2,33	2,55	2,69
68	2,92	2,72	2,41	2,13	2,87	1,49	0,81	2,42	3	2,19	2,53	2,54
69	2,53	2,51	2,03	2,28	2,69	1,16	1,07	1,98	2,76	1,86	2,38	2,2
70	2,61	2,7	2,15	2,41	2,33	1,52	0,97	2,33	2,61	2,11	2,4	2,35
71	2,71	2,25	1,96	2,29	2,41	2	1,52	2,56	2,88	2,06	2,23	2,5
72	2,53	2,46	1,95	1,95	2,32	2	1,55	1,93	2,31	2,13	2,17	2,12
73	3,21	3,18	2,72	2,59	2,61	1,85	0,7	2,7	2,7	2,41	2,78	2,6
74	2,4	2,27	2,26	2,26	2,29	1,93	1,54	2,11	2,29	2	2,27	2,13
75	2,75	2,38	2,04	2,25	2,66	1,46	0,84	2,38	2,75	2	2,33	2,38
76	2,18	2,24	2,14	1,76	1,86	1,57	1,43	1,71	2,14	1,5	2	1,78
77	2,43	2,29	1,75	2,25	2,25	1,45	1	1,93	2,79	1,75	2,13	2,16
78	1,5	1,52	1,48	1,9	1,57	1,71	1,86	1,21	1,21	1,21	1,62	1,21
79	3,18	2,81	2,76	2,76	3,18	1,81	1,54	2,71	3,79	2,86	2,88	3,12
80	2,04	1,81	1,24	1,57	1,64	2	1,68	1,64	1,43	1,14	1,57	1,4
81	1,93	1,9	1,42	1,62	1,82	1,57	1,26	1,64	2	1,21	1,69	1,62
82	1,75	1,54	1,38	1,33	1,78	1,71	1,52	1,31	1,88	1,13	1,51	1,44
83	2,22	1,67	1,06	1,56	2,25	1,89	1,17	2,17	2,83	1,5	1,64	2,17
84	2,63	2,5	2,2	2,17	1,86	2,5	2	1,75	2	2	2,18	1,92
85	0,9	1,63	1,13	1,14	1	1,86	1,75	1,25	0,8	1,33	1,22	1,13
86	2,8	1,83	2	2,17	2,43	1,17	0,89	2	3	2	2,11	2,33
87	1,42	1,56	1,22	1,78	2,27	1,56	1,17	1,33	1,8	1,17	1,71	1,43
88	2,83	2,89	2,67	2,56	3,08	1	0,92	2,5	3	2,67	2,8	2,72
89	2,83	2,33	2,44	2,11	3,1	1,78	0,92	2,8	3,33	2,4	2,49	2,84
90	2,88	2,33	2,36	2,45	2,92	1,13	1,29	2,57	3,13	2,75	2,51	2,82
91	1,9	2,29	2,57	1,71	2,88	2,22	2,17	2,4	2,5	2,75	2,36	2,55
92	2,19	2,25	2,58	2,08	1,44	2	1,69	1,63	0,75	1,13	2,09	1,17
93	1,91	1,67	1,5	1,53	1,79	1,81	1,64	1,52	1,86	1,09	1,62	1,49
94	2,15	2,06	2,11	1,6	1,83	1,68	1,33	1,83	2,04	1,7	1,9	1,86
95	1,3	1,26	1,31	1,26	1,32	1,69	1,98	1,22	1,5	1,3	1,29	1,34
96	1,68	1,63	1,5	1,48	1,5	1,52	1,21	1,77	1,52	1,62	1,53	1,64
97	2,3	2,24	2,06	2,15	2,32	1,88	1,48	1,77	2,18	1,59	2,19	1,85
98	1,86	1,77	1,67	1,52	1,52	1,57	1,64	1,74	1,81	1,66	1,62	1,74
99	2,27	1,91	1,94	1,85	2	1,39	1,39	2,05	1,77	1,59	1,92	1,8

PLATOON COMMANDERS (N = 62)

	PO	**BT**	**IM**	**IS**	**IC**	**CL**	**PL**	**EF**	**SA**	**EE**	**DL**	**OC**
1	3,75	3,71	3,35	3,32	3,74	1,11	0,33	3,29	3,95	3,62	3,53	3,62
2	2,55	2,27	1,94	1,58	1,64	1,63	0,73	2,38	2,25	1,59	1,86	2,07
3	3,07	2,83	2,89	2,54	2,8	1,59	0,69	2,77	3,19	2,38	2,77	2,78
4	3,37	3,21	2,88	2,98	3,14	1,04	0,57	3,08	3,55	3,03	3,05	3,22
5	3,29	3,17	2,87	2,7	2,85	1,04	0,48	2,93	3,25	2,88	2,9	3,02
6	3,2	3,1	3,03	2,96	3,13	1,23	0,59	3,02	3,17	2,83	3,06	3,01
7	3,27	3,05	2,64	2,64	2,78	1,28	0,75	2,88	3,14	2,68	2,78	2,9
8	2,97	2,68	2,43	2,45	2,53	1,69	1,38	2,47	2,86	2,38	2,52	2,57
9	2,9	2,92	2,62	2,63	2,71	1,89	1,23	2,63	3,05	2,49	2,72	2,72
10	3,1	2,87	2,62	2,6	2,59	1,43	1,04	2,67	3,21	2,57	2,67	2,82
11	1,06	1,01	0,99	1,11	0,91	2,12	1,74	0,89	0,39	0,58	1,01	0,62

12	2,43	1,91	2,24	1,61	1,53	2,06	1,2	1,92	1,77	1,09	1,82	1,59
13	3,24	3,07	2,95	2,75	2,89	1,26	0,68	2,56	3,5	2,76	2,92	2,94
14	2,44	2,52	2,54	2,37	2,78	1,44	1,39	2,11	2,05	2,04	2,55	2,07
15	2,09	1,67	1,84	1,48	1,36	1,82	1,52	1,75	1,91	1,25	1,59	1,64
16	2,33	2,24	2,02	2,14	2,46	1,53	1,43	2,2	2,62	1,76	2,22	2,19
17	2,66	2,55	2,41	2,52	2,77	1,13	1,12	2,35	3,24	1,89	2,56	2,49
18	2,42	2,23	1,92	2,05	2,34	1,45	1,02	2,08	2,06	1,68	2,13	1,94
19	2,48	2,31	2,03	2,07	2,18	1,28	0,95	2,11	2,38	1,82	2,15	2,1
20	2,7	2,6	2,1	2	2,11	1,81	1,36	2	2	1,89	2,2	1,96
21	3,2	2,98	2,87	2,62	3,27	1,11	0,55	2,9	3,53	2,73	2,93	3,05
22	2,61	2,18	2,15	1,9	1,86	1,5	1,28	2,23	2,06	1,45	2,02	1,91
23	2,84	2,75	2,78	2,58	2,73	2,04	1,84	2,75	2,53	2,33	2,71	2,54
24	2,71	2,61	2,44	2,39	2,5	1,89	1,67	2,64	2,5	2,25	2,49	2,46
25	2,89	2,76	2,67	2,52	2,67	1,95	1,61	2,43	2,29	2,64	2,66	2,45
26	2,54	2,28	2,22	2,22	1,79	1,44	1,21	2,17	1,83	0,92	2,13	1,64
27	2,81	2,5	2,5	2,33	2,38	1,42	1	2,5	2,38	2,25	2,43	2,38
28	2,5	2,25	2,08	1,75	1,75	1,92	1,5	1,5	2	1,75	1,96	1,75
29	2,5	2,53	2,27	2,87	2,3	1,93	1,55	1,7	2,67	2,7	2,49	2,36
30	3,5	3,28	3,28	3,17	3,38	1,22	0,96	2,83	3,67	3,08	3,28	3,19
31	2,55	2,73	2,14	2,5	2,39	1,93	1,74	2,22	2,78	2,56	2,44	2,52
32	2,63	2,92	2,58	2,17	2,19	1,92	1,44	2,38	2,75	1,75	2,47	2,29
33	2,86	2,66	2,83	1,96	2,38	1,56	1,19	2,2	2,65	2,2	2,46	2,35
34	2,63	2,52	2,68	2,2	2,17	1,68	1,3	2,4	2,64	1,95	2,39	2,33
35	2,24	1,87	2,03	1,73	1,94	1,72	1,38	2,04	2,06	1,42	1,89	1,84
36	3,23	2,88	2,93	2,58	2,78	1,74	0,78	3	2,76	2,5	2,79	2,75
37	2,92	2,7	2,52	2,51	2,69	1,32	0,89	2,33	2,88	1,93	2,61	2,38
38	2,27	1,96	1,43	1,56	1,67	1,73	1,12	1,92	1,58	1,24	1,65	1,58
39	2,11	2,12	2,3	2,07	2,16	1,67	1,28	2,07	2,28	1,96	2,16	2,1
40	2,95	2,84	2,58	2,73	2,53	1,49	0,7	2,7	2,68	2,42	2,67	2,6
41	2,59	2,58	2,44	2,35	2,37	1,72	1,38	2,33	2,48	2,12	2,43	2,31
42	3,03	3,07	2,94	2,83	2,93	1,8	1,1	2,69	2,78	2,26	2,94	2,58
43	2,3	2,36	2,31	1,84	2,44	1,82	1,39	2,07	2	1,45	2,24	1,84
44	2,79	2,78	2,56	2,53	2,9	1,57	1,48	2,48	3	2,56	2,69	2,68
45	3,15	2,8	2,23	2,38	2,74	1,54	0,87	2,36	2,84	2,08	2,54	2,43
46	2,9	2,88	2,29	2,13	2,58	1,31	1,11	2,24	2,61	2,06	2,47	2,3
47	2,64	2,63	2,33	2,43	2,78	0,91	0,67	2,23	3	2,55	2,54	2,59
48	2,67	2,57	2,25	2,1	2,19	1,48	1,37	2,29	2,14	2,31	2,28	2,25
49	2,66	2,35	2,86	2,36	2,41	1,67	1,03	2,73	2,67	2,5	2,5	2,63
50	3,67	3,64	2,55	2,7	2,93	1,25	0,8	2,4	2,88	3,14	2,96	2,81
51	3,73	3,83	3,92	3,73	4	0,14	0	3,88	4	4	3,87	3,96
52	2,91	2,83	3	2,63	2,58	1,35	0,77	2,75	3,19	2,47	2,76	2,8
53	2,9	2,71	2,58	2,35	2,4	1,36	1,1	2,29	2,56	2,38	2,51	2,41
54	3,56	3,53	3,65	3,37	3,54	1,28	0,3	3,64	3,92	3,54	3,52	3,7
55	2,42	2,33	2	2,11	2,55	1,71	1,1	1,75	1,6	2,14	2,25	1,83
56	2,81	2,67	2,55	2,67	2,44	1,67	1,5	2,88	2,75	2,75	2,58	2,79
57	3,38	3,17	2,92	2,5	2,63	1,5	1,19	3,13	2,63	3	2,81	2,92
58	3,63	3,33	3,18	2,71	2,92	1,24	0,23	3,09	3,3	2,83	3,03	3,07
59	2,65	2,68	2,58	2,44	2,72	2	1,55	2,79	2,86	2,5	2,61	2,72
60	2,72	2,57	2,34	2,28	2,45	1,65	1,33	2,29	2,87	2,25	2,41	2,47
61	2,84	2,54	2,4	2,24	2,46	1,42	1,28	2,42	2,83	2,33	2,41	2,53
62	2,86	2,61	2,17	2,19	2,45	1,26	0,95	2,27	2,88	2,04	2,35	2,4

PLATOON INSTRUCTORS (N = 82)

	PO	**BT**	**IM**	**IS**	**IC**	**CL**	**PL**	**EF**	**SA**	**EE**	**DL**	**OC**
1	3,17	2,94	3,14	2,28	2	1,69	0,79	2,79	2,42	2,38	2,59	2,53
2	3,18	2,83	2,47	2,13	1,95	1,77	0,75	2,7	2,05	2,25	2,35	2,33
3	3,28	3,17	3,21	2,25	2,5	0,67	0,25	3	2,88	2,88	2,78	2,92
4	3,25	3,04	3,08	2,58	2,5	1,46	0,56	3,25	3,31	2,94	2,8	3,17
5	3,88	3,69	3,53	3,31	3,58	1,44	0,66	3,46	3,88	3,58	3,53	3,64

6	3,17	3,44	3,27	2,68	3,02	1,4	0,64	3	2,92	2,79	3,1	2,9
7	3,03	2,7	2,63	2,45	2,52	1,06	0,62	2,71	3,07	2,48	2,58	2,75
8	3,65	3,38	3,29	2,94	2,99	1,24	0,51	3,36	3,56	3,18	3,15	3,37
9	3,18	3,09	2,65	2,58	2,94	1,14	0,63	2,74	3	2,48	2,82	2,74
10	3,03	2,78	2,58	2,33	2,42	1,49	0,41	2,59	2,53	2,39	2,53	2,5
11	3,52	3,12	3,21	2,84	3,08	1,19	0,45	2,95	3,67	2,78	3,06	3,13
12	3,05	2,54	2,68	2,03	2,26	1,61	1,02	2,56	2,7	2,34	2,38	2,53
13	2,92	2,53	2,6	2,18	2,42	1,53	0,97	2,48	2,64	2,14	2,43	2,42
14	2,95	2,58	2,6	2,38	2,49	1,7	1,24	2,6	2,76	2,44	2,51	2,6
15	3,4	3,21	3,01	2,65	2,86	1,2	0,55	2,92	3,14	2,65	2,93	2,9
16	3,34	3,05	2,86	2,62	2,66	1,05	0,83	2,78	3,06	2,46	2,8	2,77
17	2,37	1,8	1,66	1,91	2,05	1,24	1,71	2,11	2,29	2,08	1,86	2,16
18	2,71	2,19	2,14	1,85	1,69	2,13	1,27	1,87	1,06	1,27	1,97	1,4
19	2,19	2,05	1,91	1,48	1,38	1,96	1,28	1,74	1,05	0,97	1,7	1,25
20	3,08	2,71	2,75	2,45	2,24	1,62	0,84	2,62	2,84	2,4	2,54	2,62
21	2,97	2,57	2,7	2,26	2,33	1,41	0,91	2,64	2,85	2,35	2,47	2,61
22	3,16	2,74	2,83	2,47	2,56	1,17	0,86	2,59	2,82	2,34	2,65	2,58
23	3,1	2,6	2,67	2,25	2,27	1,49	1,08	2,48	2,79	2,15	2,45	2,47
24	3,24	2,96	2,62	2,44	2,62	1,53	1,07	2,81	2,76	2,19	2,66	2,59
25	2,86	2,45	2,28	2,06	2	1,8	0,63	2,47	1,83	1,64	2,2	1,98
26	3,3	2,82	3,32	2,44	2,82	1,28	0,85	3,04	3,42	2,83	2,85	3,1
27	3,04	2,69	2,85	2,4	2,79	1,11	0,59	2,71	2,83	2,58	2,68	2,71
28	2,6	2,53	2,21	2,05	1,69	2,09	1,75	2,36	2,21	1,81	2,12	2,13
29	3,72	3,57	3,44	3,08	3,54	1,08	0,34	3,36	3,61	3,03	3,41	3,33
30	3,3	3,04	3,18	2,91	3,25	1,09	0,69	3,03	3,43	2,93	3,1	3,13
31	3,58	3,22	3,67	3,22	3,83	1,22	0,67	3,67	4	3,83	3,49	3,83
32	2,22	2,19	2,02	2,09	2,02	1,93	1,88	2,59	1,73	1,6	2,08	1,97
33	2,89	2,39	2,45	2,42	2,25	1,94	1,55	2,55	2,73	2,27	2,38	2,52
34	3,06	2,75	2,13	2,33	2,17	1,58	1,28	2,69	2,13	2	2,34	2,27
35	1,95	1,85	1,85	1,55	1,61	1,88	1,59	1,55	1,64	1,45	1,72	1,55
36	2,56	2,17	2,08	2,75	2,06	1,17	1,06	1,75	2,13	2,13	2,27	2
37	2,43	2,36	2,03	2,12	2,64	1,73	1,77	2,14	2,18	1,64	2,29	1,99
38	3,1	3	2,64	2,67	2,69	1,38	0,88	2,54	2,96	2,32	2,75	2,61
39	2,99	2,73	2,62	2,48	2,54	1,79	1,27	2,45	2,71	2,5	2,59	2,55
40	2,78	2,49	2,32	2,23	2,53	1,7	1,5	2,46	2,66	2,27	2,39	2,46
41	2,94	2,53	2,47	2,2	2,35	1,52	0,78	2,29	2,54	2,06	2,39	2,3
42	3,07	2,8	2,84	2,41	2,51	1,58	0,84	2,56	2,58	2,18	2,64	2,44
43	2,87	2,64	2,64	2,03	2,19	1,51	1,09	2,45	2,39	2,06	2,38	2,3
44	3,17	2,73	2,77	2,2	2,15	1,44	0,99	2,35	2,86	2,38	2,46	2,53
45	3,14	2,91	2,77	2,69	2,77	1,29	0,94	2,64	3,14	2,64	2,78	2,81
46	3,59	3,18	3,16	2,7	3,06	1,23	0,52	3,02	3,54	2,53	3,03	3,03
47	3,41	2,93	2,48	2,19	2,04	1,77	0,54	3	2,18	2,06	2,41	2,41
48	3	2,64	2,17	2,64	1,92	1,22	0,83	2,67	2,29	2,71	2,34	2,56
49	3,03	2,88	2,63	2,67	2,34	1,58	1,06	2,57	2,44	2,06	2,63	2,36
50	2,76	2,63	2,63	2,6	2,54	1,21	1,15	2,62	2,77	2,5	2,6	2,63
51	3,19	2,92	3,09	3	3	1,91	1,5	3,38	3,67	3,13	3	3,39
52	2,97	2,73	2,76	2,38	2,52	1,61	0,88	2,81	2,96	2,21	2,6	2,66
53	3,21	2,76	3,09	2,52	2,59	1,63	0,9	2,86	2,96	2,62	2,74	2,81
54	3,65	3,39	3,36	2,61	2,86	1,35	0,63	3,34	3,5	3,05	3,06	3,3
55	3,45	3,04	3,08	2,49	2,85	0,96	0,59	3,17	3,54	2,71	2,87	3,14
56	3,45	3,27	3,15	2,9	3,31	1,16	0,58	3,06	3,47	2,83	3,16	3,12
57	3,61	3,36	3,03	2,77	3,2	1,35	0,62	2,89	3,57	2,73	3,09	3,06
58	3,56	3,25	3,27	3,06	3,4	0,87	0,46	3,05	3,79	3,21	3,25	3,35
59	3,65	3,25	3,15	2,67	2,84	1,3	0,41	2,9	3,58	2,93	2,98	3,14
60	3,48	3,04	2,39	2,36	2,79	1,35	0,94	2,45	2,97	2,13	2,64	2,52
61	2,7	2,13	1,7	1,92	2	1,92	1,2	2,21	1,88	1,85	1,94	1,98
62	3,65	3,34	2,94	2,67	3,08	1,21	0,62	3	3,47	2,77	3,01	3,08
63	3,35	3,2	3,09	3,12	3,15	1,27	0,64	2,88	3,67	3	3,14	3,18
64	2,62	2,57	2,56	2,07	2,7	1,53	0,95	2,36	2,75	2,36	2,47	2,49
65	3,52	3,4	3,19	3,21	3,26	1,29	1	3,31	3,36	3,43	3,27	3,37

66	2,86	3	3,19	2,9	3,07	0,84	1,21	3	3,21	2,85	3,04	3,02
67	3	2,85	2,79	2,63	2,46	1,89	1,51	2,78	3,25	2,75	2,68	2,93
68	3,5	3,22	3	3	2,67	2	1,9	3,17	3	2,33	2,97	2,83
69	2,78	2,71	2,36	2,15	1,96	1,68	1,32	2,21	2	2,29	2,3	2,17
70	3,44	3,57	3	2,63	3,22	1,86	1,2	3	3	3,4	3,11	3,13
71	2,55	2,07	1,6	1,6	1,65	2,27	1,55	2	1,4	1,6	1,73	1,67
72	3,5	3,17	3,29	2,83	2	0,83	1,11	3	2,4	3	2,82	2,8
73	3,75	3,67	2,78	3	3,64	2	1,33	3,17	3,83	3,17	3,27	3,39
74	2,43	2,14	2,33	2,29	2,89	1,76	2,21	2,36	2,29	2,14	2,41	2,26
75	3,71	3,44	3,17	3,25	3,22	0,89	0,09	3,33	3,64	3	3,27	3,32
76	3	2,84	2,5	2,39	2,8	2,11	1,79	2,62	2,73	2,64	2,63	2,66
77	2,57	2,24	2	1,76	2,14	1,62	1,07	2,07	2	1,43	2,04	1,83
78	3,63	3,33	3,38	3,1	3,29	1,38	0,38	3,29	3	3,15	3,28	3,15
79	2,42	2,26	2,15	2,04	2,62	1,68	0,97	2,47	2,29	2,24	2,27	2,33
80	2,96	2,44	2,47	2,17	2,08	1,61	1,06	2,29	2,13	1,67	2,29	2,03

Explanation of abbreviations

PO	Potential factor
BT	Building trust and confidence factor
IM	Inspirational motivation factor
IS	Intellectual stimulation factor
IC	Individualized consideration factor
CL	Controlling/corrective leadership factor
PL	Passive leadership factor
EF	Effectiveness factor
SA	Satisfaction factor
EE	Extra effort factor
DL	Deep leadership dimension
OC	Outcomes dimensions

CLUSTER ANALYSIS SUMMARY

Professional skills (PO)

* * * C E L L M E A N S * * *

AMMTAITO
by CLU5_1 Ward Method

Total Population

2,75
(241)

CLU5_1

1	2	3	4	5
2,84	3,47	1,59	2,39	2,90
(102)	(39)	(26)	(38)	(36)

* * * A N A L Y S I S O F V A R I A N C E * * *

AMMTAITO
by CLU5_1 Ward Method

HIERARCHICAL sums of squares
Covariates entered FIRST

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	62,217	4	15,554	187,348	,000
CLU5_1	62,217	4	15,554	187,348	,000
Explained	62,217	4	15,554	187,348	,000
Residual	19,593	236	,083		
Total	81,810	240	,341		

241 cases were processed.
0 cases (,0 pct) were missing.

CLUSTER ANALYSIS SUMMARY

Deep leadership dimension (DL)

* * * CELL MEANS * * *

SYVAJOHT SYVfJOHT
by CLU5_1 Ward Method

Total Population

2,44
(241)

CLU5_1

1	2	3	4	5
2,50	3,14	1,46	2,05	2,61
(102)	(39)	(26)	(38)	(36)

* * * ANALYSIS OF VARIANCE * * *

SYVAJOHT SYVfJOHT
by CLU5_1 Ward Method

HIERARCHICAL sums of squares
Covariates entered FIRST

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	51,275	4	12,819	214,441	,000
CLU5_1	51,275	4	12,819	214,441	,000
Explained	51,275	4	12,819	214,441	,000
Residual	14,107	236	,060		
Total	65,382	240	,272		

(241 cases were processed.
0 cases (,0 pct) were missing.

CLUSTER ANALYSIS SUMMARY

Controlling and corrective leadership (CL)

* * * C E L L M E A N S * * *

KONTJOHT
by CLU5_1 Ward Method

Total Population

1,53
(241)

CLU5_1

1	2	3	4	5
1,38	1,16	1,84	1,85	1,81
(102)	(39)	(26)	(38)	(36)

* * * A N A L Y S I S O F V A R I A N C E * * *

KONTJOHT
by CLU5_1 Ward Method

HIERARCHICAL sums of squares
Covariates entered FIRST

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	16,916	4	4,229	63,870	,000
CLU5_1	16,916	4	4,229	63,870	,000
Explained	16,916	4	4,229	63,870	,000
Residual	15,626	236	,066		
Total	32,542	240	,136		

241 cases were processed.
0 cases (,0 pct) were missing.

CLUSTER ANALYSIS SUMMARY

Passive leadership (PL)

* * * C E L L M E A N S * * *

PASSJOHT
by CLU5_1 Ward Method

Total Population

1,11
(241)

CLU5_1

1	2	3	4	5
,94	,55	1,65	1,47	1,44
(102)	(39)	(26)	(38)	(36)

* * * A N A L Y S I S O F V A R I A N C E * * *

PASSJOHT
by CLU5_1 Ward Method

HIERARCHICAL sums of squares
Covariates entered FIRST

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	31,795	4	7,949	106,897	,000
CLU5_1	31,795	4	7,949	106,897	,000
Explained	31,795	4	7,949	106,897	,000
Residual	17,549	236	,074		
Total	49,344	240	,206		

241 cases were processed.
0 cases (,0 pct) were missing.

CLUSTER ANALYSIS SUMMARY

Outcomes dimension (OC)

* * * C E L L M E A N S * * *

V AIKUTUS
by CLU5_1 Ward Method

Total Population

2,40
(241)

CLU5_1

1	2	3	4	5
2,48	3,21	1,30	1,89	2,64
(102)	(39)	(26)	(38)	(36)

* * * A N A L Y S I S O F V A R I A N C E * * *

V AIKUTUS
by CLU5_1 Ward Method

HIERARCHICAL sums of squares
Covariates entered FIRST

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	69,566	4	17,391	217,800	,000
CLU5_1	69,566	4	17,391	217,800	,000
Explained	69,566	4	17,391	217,800	,000
Residual	18,845	236	,080		
Total	88,410	240	,368		

241 cases were processed.
0 cases (,0 pct) were missing.

REGRESSION ANALYSIS SUMMARY
Dependent variable: Effectiveness (EF) Factor

Savo Brigade Sample
N=3024

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR[a]	.	Enter

a. All requested variables entered.
b. Dependent Variable: EFFACTOR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,821[a]	,675	,674	,4900

a. Predictors: (Constant), PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1503,433	6	250,572	1043,696	,000[a]
	Residual	724,567	3018	,240		
	Total	2228,000	3024			

a. Predictors: (Constant), PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR
b. Dependent Variable: EFFACTOR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,305	,043		7,022	,000
	BTFACTOR	,263	,018	,257	14,277	,000
	IMFACTOR	,400	,018	,383	22,274	,000
	ISFACTOR	,205	,019	,176	10,546	,000
	ICFACTOR	5,509E-02	,017	,053	3,259	,001
	CLFACTOR	6,454E-02	,014	,060	4,628	,000
	PLFACTOR	-,126	,013	-,128	-9,392	,000

a. Dependent Variable: EFFACTOR

REGRESSION ANALYSIS SUMMARY
Dependent variable: Satisfaction (SA) Factor

Savo Brigade Sample
N=3024

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: SAFACTOR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,813[a]	,661	,660	,5996

a. Predictors: (Constant), PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2112,265	6	352,044	979,239	,000[a]
	Residual	1084,995	3018	,360		
	Total	3197,261	3024			

a. Predictors: (Constant), PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR

b. Dependent Variable: SAFACTOR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9,421E-02	,053		1,770	,077
	BTFACTOR	,290	,023	,236	12,843	,000
	IMFACTOR	,291	,022	,233	13,253	,000
	ISFACTOR	,157	,024	,113	6,630	,000
	ICFACTOR	,349	,021	,281	16,858	,000
	CLFACTOR	-9,181E-03	,017	-,007	-,538	,591
	PLFACTOR	-,130	,016	-,110	-7,941	,000

a. Dependent Variable: SAFACTOR

REGRESSION ANALYSIS SUMMARY
Dependent variable: Extra Effort (EE) Factor

Savo Brigade Sample
N=3024

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: EEFACTOR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,739[a]	,547	,546	,6660

a. Predictors: (Constant), PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1613,318	6	268,886	606,169	,000[a]
	Residual	1338,735	3018	,444		
	Total	2952,053	3024			

a. Predictors: (Constant), PLFACTOR, IMFACTOR, CLFACTOR, ICFACTOR, ISFACTOR, BTFACTOR

b. Dependent Variable: EEFACTOR

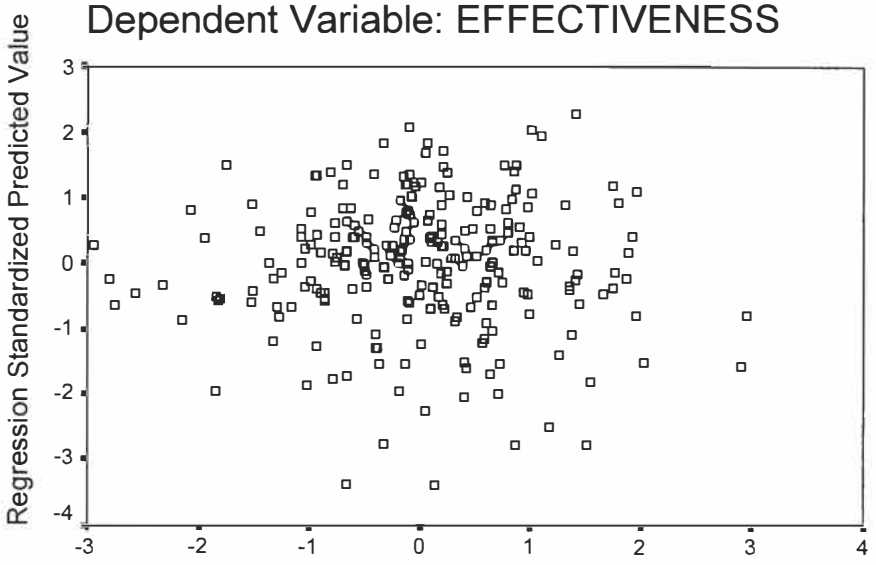
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,451	,059		-7,629	,000
	BTFACTOR	,137	,025	,116	5,453	,000
	IMFACTOR	,466	,024	,388	19,101	,000
	ISFACTOR	,159	,026	,119	6,025	,000
	ICFACTOR	,289	,023	,242	12,589	,000
	CLFACTOR	1,241E-02	,019	,010	,655	,513
	PLFACTOR	9,553E-02	,018	,084	5,248	,000

a. Dependent Variable: EEFACTOR

Scatterplot

Dependent Variable: EFFECTIVENESS



Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,6116	3,5958	2,3978	,5237	241
Residual	-,5998	,6025	,0005	,2008	241
Std. Predicted Value	-3,411	2,288	,000	1,000	241
Std. Residual	-2,944	2,957	,000	,985	241

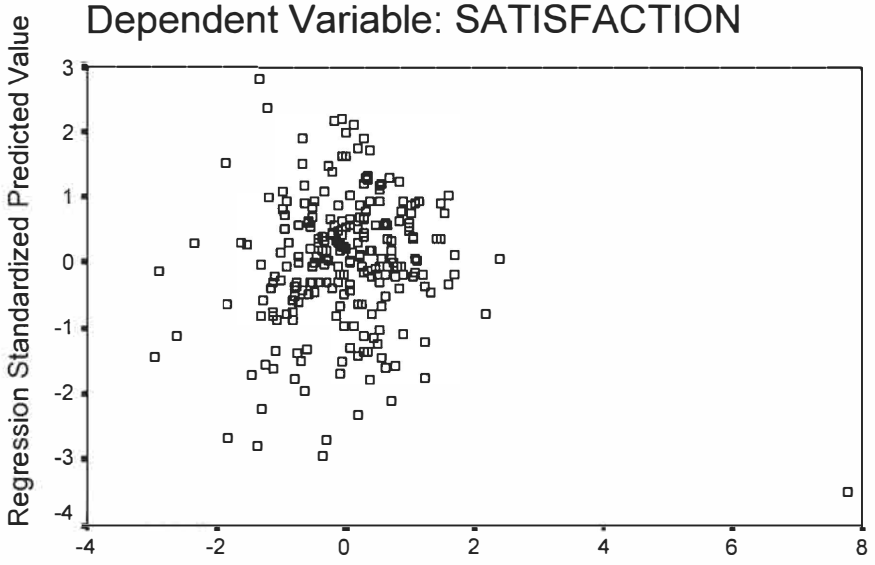
a Dependent Variable: EFFECTIVENESS

One-Sample Test

Test Value = 0					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
1,001	11	,338	19,4387	-23,2927	62,1701

Scatterplot

Dependent Variable: SATISFACTION



Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,3884	4,4342	2,6242	,6385	241
Residual	-,9551	2,5116	,0001	,3183	241
Std. Predicted Value	-3,501	2,835	,000	1,000	241
Std. Residual	-2,957	7,775	,000	,985	241

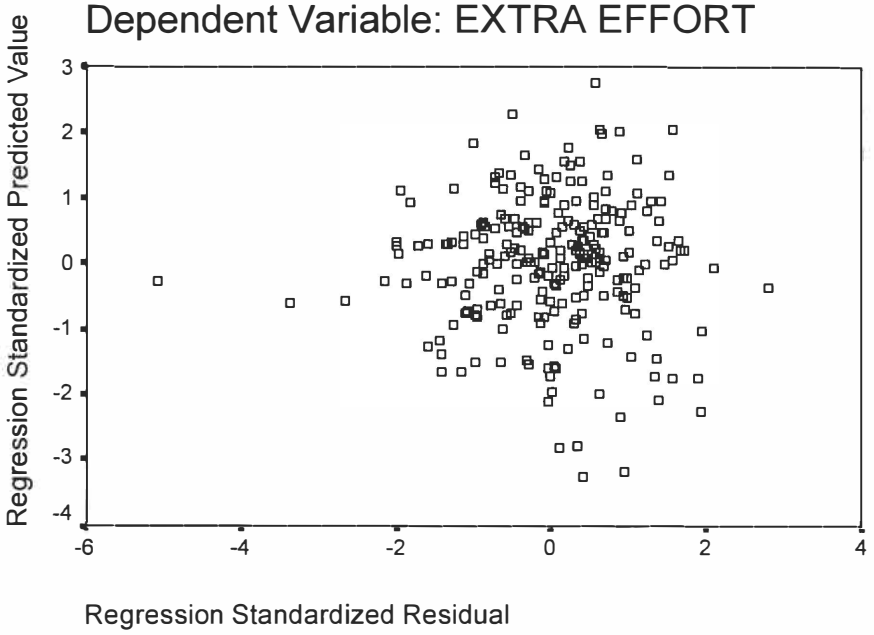
a Dependent Variable: SATISFACTION

One-Sample Test

Test Value = 0					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
1,005	11	,337	19,5042	-23,2143	62,2227

Scatterplot

Dependent Variable: EXTRA EFFORT



Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,2225	3,8499	2,1810	,6047	241
Residual	-1,3451	,7429	,0001	,2603	241
Std. Predicted Value	-3,239	2,760	,000	1,000	241
Std. Residual	-5,091	2,812	,000	,985	241

a Dependent Variable: EXTRA EFFORT

One-Sample Test

Test Value = 0					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
,998	11	,340	19,3752	-23,3691	62,1195

LINEAR REGRESSION MODELS WITH VARIOUS COMBINATIONS OF INDEPENDENT VARIABLES

1. Regression Models for Dependent Variable: EFFECTIVENESS (N = 241)

Number in Model	R-square	Variables in Model
1	0.82773168	IM
1	0.77479504	BT
1	0.70973480	IS
1	0.63330779	IC
1	0.36252634	PL
1	0.18391541	CL
2	0.84841771	BT IM
2	0.84548647	IM IC
2	0.84062406	IM IS
2	0.83191102	IM PL
2	0.82841379	IM CL
2	0.79718114	BT IS
2	0.79323290	BT IC
2	0.77854939	BT PL
2	0.77606450	BT CL
2	0.73208433	IS PL
3	0.85513390	BT IM IC
3	0.85141962	BT IM IS
3	0.84932148	BT IM PL
3	0.84847546	BT IM CL
3	0.84726896	IM IS IC
3	0.84726724	IM IC PL
3	0.84621049	IM IC CL
3	0.84331539	IM IS PL
3	0.84063810	IM IS CL
3	0.83212738	IM CL PL
4	0.85570493	BT IM IC CL
4	0.85568047	BT IM IC PL
4	0.85536345	BT IM IS IC
4	0.85230590	BT IM IS PL
4	0.85144608	BT IM IS CL
4	0.85115789	IM IC CL PL
4	0.84946587	BT IM CL PL
4	0.84899692	IM IS IC PL
4	0.84809942	IM IS IC CL
4	0.84505601	IM IS CL PL
5	0.85786740	BT IM IC CL PL
5	0.85597728	BT IM IS IC CL
5	0.85594183	BT IM IS IC PL
5	0.85312645	IM IS IC CL PL
5	0.85310915	BT IM IS CL PL
5	0.80781251	BT IS IC CL PL
6	0.85830682	BT IM IS IC CL PL

2. Regression Models for Dependent Variable: SATISFACTION (N = 241)

Number in Model	R-square	Variables in Model
1	0.76597419	IC
1	0.68367182	IS
1	0.63084604	BT
1	0.59636961	IM
1	0.33607926	PL
1	0.30546820	CL
2	0.78565158	IS IC
2	0.78562307	BT IC
2	0.78528908	IM IC
2	0.77767098	IC PL
2	0.77138175	IC CL
2	0.70870885	IS CL
2	0.70513700	BT IS
2	0.70138384	IS PL
2	0.69718883	IM IS
2	0.67829867	BT CL
3	0.79226329	IS IC PL
3	0.79132527	BT IC CL
3	0.79078395	BT IS IC
3	0.79049205	IM IC CL
3	0.79043769	IM IS IC
3	0.79023795	IS IC CL
3	0.78975334	IM IC PL
3	0.78942135	BT IC PL
3	0.78862635	BT IM IC
3	0.77797057	IC CL PL
4	0.79585503	BT IS IC CL
4	0.79519905	IM IS IC CL
4	0.79475985	IM IS IC PL
4	0.79467867	BT IS IC PL
4	0.79409414	BT IM IC CL
4	0.79302476	IS IC CL PL
4	0.79196904	BT IM IS IC
4	0.79182750	BT IM IC PL
4	0.79176959	BT IC CL PL
4	0.79145749	IM IC CL PL
5	0.79698794	BT IM IS IC CL
5	0.79648373	BT IS IC CL PL
5	0.79622017	IM IS IC CL PL
5	0.79546271	BT IM IS IC PL
5	0.79434853	BT IM IC CL PL
5	0.73029771	BT IM IS CL PL
6	0.79743291	BT IM IS IC CL PL

3. Regression Models for Dependent Variable: EXTRA EFFORT (N = 241)

Number in Model	R-square	Variables in Model
1	0.76069775	IM
1	0.75961658	BT
1	0.73621053	IS
1	0.71121084	IC
1	0.29258737	PL
1	0.22946930	CL
2	0.82686977	IM IC
2	0.81247065	BT IC
2	0.80420696	IM IS
2	0.80104926	BT IM
2	0.79857732	BT IS
2	0.77722086	IS IC
2	0.77087765	IM CL
2	0.76887670	BT CL
2	0.76096617	IM PL
2	0.75972655	BT PL
3	0.83802390	BT IM IC
3	0.83152931	IM IS IC
3	0.82768884	IM IC PL
3	0.82687698	IM IC CL
3	0.82007840	BT IS IC
3	0.81860258	BT IM IS
3	0.81366584	BT IC PL
3	0.81258306	BT IC CL
3	0.80676111	BT IM CL
3	0.80650581	IM IS CL
4	0.84055633	BT IM IC PL
4	0.83963363	BT IM IS IC
4	0.83805916	BT IM IC CL
4	0.83240840	IM IS IC PL
4	0.83152943	IM IS IC CL
4	0.82823202	IM IC CL PL
4	0.82120965	BT IS IC PL
4	0.82074974	BT IM IS CL
4	0.82010570	BT IS IC CL
4	0.81982692	BT IM IS PL
5	0.84251427	BT IM IC CL PL
5	0.84200051	BT IM IS IC PL
5	0.83964744	BT IM IS IC CL
5	0.83282098	IM IS IC CL PL
5	0.82677751	BT IM IS CL PL
5	0.82218592	BT IS IC CL PL
6	0.84365231	BT IM IS IC CL PL

CONTINUED ANALYSIS OF LINEAR REGRESSION MODELS WITHOUT CL AND PL FACTORS

1. MODEL1 (Dependent Variable: EFFECTIVENESS)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	64.57321	16.14330	348.919	0.0001
Error	236	10.91892	0.04627		
C Total	240	75.49213			

Root MSE	0.21510	R-square	0.8554
Dep Mean	2.39780	Adj R-sq	0.8529
C.V.	8.97058		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.079868	0.06852094	1.166	0.2450
BT	1	0.231250	0.06363110	3.634	0.0003
IM	1	0.544948	0.05811079	9.378	0.0001
IS	1	0.044961	0.07346417	0.612	0.5411
IC	1	0.123544	0.04870167	2.537	0.0118

2. MODEL2 (Dependent Variable: SATISFACTION)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	96.75570	24.18893	224.612	0.0001
Error	236	25.41536	0.10769		
C Total	240	122.17107			

Root MSE	0.32816	R-square	0.7920
Dep Mean	2.62419	Adj R-sq	0.7884
C.V.	12.50538		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.250043	0.10453978	-2.392	0.0175
BT	1	0.127955	0.09707954	1.318	0.1888
IM	1	0.102798	0.08865742	1.159	0.2474
IS	1	0.218260	0.11208149	1.947	0.0527
IC	1	0.731368	0.07430228	9.843	0.0001

3. MODEL3 (Dependent Variable: EXTRA EFFORT)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	87.35270	21.83817	308.908	0.0001
Error	236	16.68399	0.07069		
C Total	240	104.03668			

Root MSE	0.26589	R-square	0.8396
Dep Mean	2.18095	Adj R-sq	0.8369
C.V.	12.19122		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.591780	0.08469998	-6.987	0.0001
BT	1	0.271636	0.07865556	3.453	0.0007
IM	1	0.385343	0.07183181	5.365	0.0001
IS	1	0.139769	0.09081041	1.539	0.1251
IC	1	0.334914	0.06020102	5.563	0.0001

4. ANALYSIS WITH VARIANCE AND CODING COEFFICIENTS

Coding Coefficients for the Independent Variables

Factor	Subtracted off	Divided by
BT	2.080000	1.750000
IM	2.240000	1.680000
IS	2.145000	1.585000
IC	2.285000	1.715000

4.1 Response Surface for Variable EF

Response Mean	2.397801
Root MSE	0.211266
R-Square	0.8664
Coef. of Variation	8.8108

Regression	Degrees of Freedom	Type I Sum of Squares	R-Square	F-Ratio	Prob > F
Linear	4	64.573213	0.8554	361.7	0.0000
Quadratic	4	0.149156	0.0020	0.835	0.5039
Crossproduct	6	0.682594	0.0090	2.549	0.0208
Total Regress	14	65.404963	0.8664	104.7	0.0000

Residual	Degrees of Freedom	Sum of Squares	Mean Square
Total Error	226	10.087172	0.044634

Parameter	Degrees of Freedom	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEPT	1	0.013277	0.191560	0.0693	0.9448
BT	1	0.462626	0.301318	1.535	0.1261
IM	1	-0.252568	0.311271	-0.811	0.4180
IS	1	0.426261	0.423333	1.007	0.3151
IC	1	0.366889	0.233598	1.571	0.1177
BT*BT	1	0.120343	0.169951	0.708	0.4796
IM*BT	1	-0.242031	0.283041	-0.855	0.3934
IM*IM	1	-0.088566	0.168093	-0.527	0.5988
IS*BT	1	0.285403	0.347294	0.822	0.4121
IS*IM	1	0.604813	0.271328	2.229	0.0268
IS*IS	1	-0.518589	0.227729	-2.277	0.0237
IC*BT	1	-0.379600	0.222727	-1.704	0.0897
IC*IM	1	0.186024	0.179766	1.035	0.3019
IC*IS	1	-0.055640	0.233093	-0.239	0.8116
IC*IC	1	0.076225	0.109814	0.694	0.4883

Parameter	Parameter Estimate from Coded Data
INTERCEPT	2.177632
BT	0.290336
IM	0.956964
IS	0.036132
IC	0.382473

Parameter	Parameter Estimate from Coded Data
BT*BT	0.368549
IM*BT	-0.711571
IM*IM	-0.249968
IS*BT	0.791637
IS*IM	1.610495
IS*IS	-1.302813
IC*BT	-1.139274
IC*IM	0.535972
IC*IS	-0.151244
IC*IC	0.224195

Factor	Degrees of Freedom	Sum of Squares	Mean Square	F-Ratio	Prob > F
BT	5	0.775336	0.155067	3.474	0.0048
IM	5	4.405810	0.881162	19.742	0.0000
IS	5	0.499800	0.099960	2.240	0.0514
IC	5	0.431396	0.086279	1.933	0.0898

Canonical Analysis of Response Surface(based on coded data)

Factor	Critical Value Coded	Uncoded
BT	-0.480528	1.239075
IM	-2.480504	-1.927246
IS	-1.684038	-0.524200
IC	0.323054	2.839037

Predicted value at stationary point 0.952354

Eigenvalues	Eigenvectors BT	IM	IS	IC
1.027671	-0.722296	0.307895	-0.036351	0.618197
0.143539	0.302488	0.794849	0.525911	-0.011529
-0.270173	0.582128	-0.210912	0.001160	0.785266
-1.861073	-0.218900	-0.478468	0.849761	0.032509

Stationary point is a saddle point.

Coding Coefficients for the Independent Variables

Factor	Subtracted off	Divided by
BT	2.080000	1.750000
IM	2.240000	1.680000
IS	2.145000	1.585000
IC	2.285000	1.715000

4.2 Response Surface for Variable SA

Response Mean	2.624191
Root MSE	0.324414
R-Square	0.8053
Coef. of Variation	12.3624

Regression	Degrees of Freedom	Type I Sum of Squares	R-Square	F-Ratio	Prob > F
Linear	4	96.755703	0.7920	229.8	0.0000
Quadratic	4	0.312332	0.0026	0.742	0.5643
Crossproduct	6	1.317747	0.0108	2.087	0.0557
Total Regress	14	98.385782	0.8053	66.774	0.0000

Residual	Degrees of Freedom	Sum of Squares	Mean Square
Total Error	226	23.785285	0.105245

Parameter	Degrees of Freedom	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEPT	1	-0.089141	0.294154	-0.303	0.7621
BT	1	0.283834	0.462694	0.613	0.5402
IM	1	-0.167561	0.477978	-0.351	0.7262
IS	1	0.377732	0.650058	0.581	0.5618
IC	1	0.556201	0.358706	1.551	0.1224
BT*BT	1	-0.342494	0.260971	-1.312	0.1907
IM*BT	1	0.549704	0.434629	1.265	0.2073
IM*IM	1	0.208502	0.258119	0.808	0.4201
IS*BT	1	0.244589	0.533295	0.459	0.6469
IS*IM	1	-0.991373	0.416643	-2.379	0.0182
IS*IS	1	-0.085368	0.349693	-0.244	0.8074
IC*BT	1	-0.117533	0.342012	-0.344	0.7314
IC*IM	1	0.052940	0.276044	0.192	0.8481
IC*IS	1	0.818176	0.357930	2.286	0.0232
IC*IC	1	-0.313159	0.168627	-1.857	0.0646

Parameter	Parameter Estimate from Coded Data
INTERCEPT	2.355209
BT	0.606333
IM	-0.160631
IS	0.268036
IC	1.293398

Parameter	Parameter Estimate from Coded Data
BT*BT	-1.048888
IM*BT	1.616131
IM*IM	0.588476
IS*BT	0.678429
IS*IM	-2.639828
IS*IS	-0.214463
IC*BT	-0.352747
IC*IM	0.152531
IC*IS	2.224029
IC*IC	-0.921072

Factor	Degrees of Freedom	Sum of Squares	Mean Square	F-Ratio	Prob > F
BT	5	0.522728	0.104546	0.993	0.4226
IM	5	1.274460	0.254892	2.422	0.0366
IS	5	1.449679	0.289936	2.755	0.0194
IC	5	11.115347	2.223069	21.123	0.0000

Canonical Analysis of Response Surface
(based on coded data)

Factor	Critical Value Coded	Uncoded
BT	-9.287151	-14.172514
IM	-10.350914	-15.149536
IS	-11.037607	-15.349607
IC	-11.702329	-17.784494

Predicted value at stationary point -8.676126

Eigenvalues	Eigenvectors BT	IM	IS	IC
1.786886	0.156680	0.749798	-0.598423	-0.234828
0.024531	0.437737	0.489223	0.509172	0.556589
-1.029284	0.753883	-0.192509	0.191008	-0.598428
-2.378081	0.464218	-0.401751	-0.588345	0.526259

Stationary point is a saddle point.

Coding Coefficients for the Independent Variables

Factor	Subtracted off	Divided by
BT	2.080000	1.750000
IM	2.240000	1.680000
IS	2.145000	1.585000
IC	2.285000	1.715000

4.3 Response Surface for Variable EE

Response Mean	2.180954
Root MSE	0.253268
R-Square	0.8607
Coef. of Variation	11.6127

Regression	Degrees of Freedom	Type I Sum of Squares	R-Square	F-Ratio	Prob > F
Linear	4	87.352695	0.8396	340.5	0.0000
Quadratic	4	0.543281	0.0052	2.117	0.0795
Crossproduct	6	1.644040	0.0158	4.272	0.0004
Total Regress	14	89.540017	0.8607	99.708	0.0000

Residual	Degrees of Freedom	Sum of Squares	Mean Square
Total Error	226	14.496663	0.064145

Parameter	Degrees of Freedom	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEPT	1	-0.236271	0.229644	-1.029	0.3046
BT	1	0.545544	0.361222	1.510	0.1324
IM	1	-0.494989	0.373154	-1.327	0.1860
IS	1	-0.175331	0.507495	-0.345	0.7301
IC	1	0.857040	0.280039	3.060	0.0025
BT*BT	1	0.511761	0.203738	2.512	0.0127
IM*BT	1	-0.527680	0.339312	-1.555	0.1213
IM*IM	1	-0.090180	0.201511	-0.448	0.6549
IS*BT	1	-0.448566	0.416339	-1.077	0.2824
IS*IM	1	0.635913	0.325270	1.955	0.0518
IS*IS	1	0.469038	0.273003	1.718	0.0872
IC*BT	1	-0.214892	0.267006	-0.805	0.4218
IC*IM	1	0.498666	0.215505	2.314	0.0216
IC*IS	1	-0.923279	0.279433	-3.304	0.0011
IC*IC	1	0.188075	0.131645	1.429	0.1545

Parameter	Parameter Estimate from Coded Data
INTERCEPT	1.874862
BT	0.068715
IM	0.851621
IS	0.346444
IC	0.696540

Parameter	Parameter Estimate from Coded Data
BT*BT	1.567269
IM*BT	-1.551379
IM*IM	-0.254523
IS*BT	-1.244211
IS*IM	1.693309
IS*IS	1.178330
IC*BT	-0.644945
IC*IM	1.436758
IC*IS	-2.509727
IC*IC	0.553171

Factor	Degrees of Freedom	Sum of Squares	Mean Square	F-Ratio	Prob > F
BT	5	1.656699	0.331340	5.166	0.0002
IM	5	3.199235	0.639847	9.975	0.0000
IS	5	1.043944	0.208789	3.255	0.0074
IC	5	3.156558	0.631312	9.842	0.0000

Canonical Analysis of Response Surface
(based on coded data)

Factor	Critical Value Coded	Uncoded
BT	-3.473838	-3.999217
IM	-3.867499	-4.257398
IS	-2.344569	-1.571141
IC	-2.950753	-2.775542

Predicted value at stationary point -1.325103

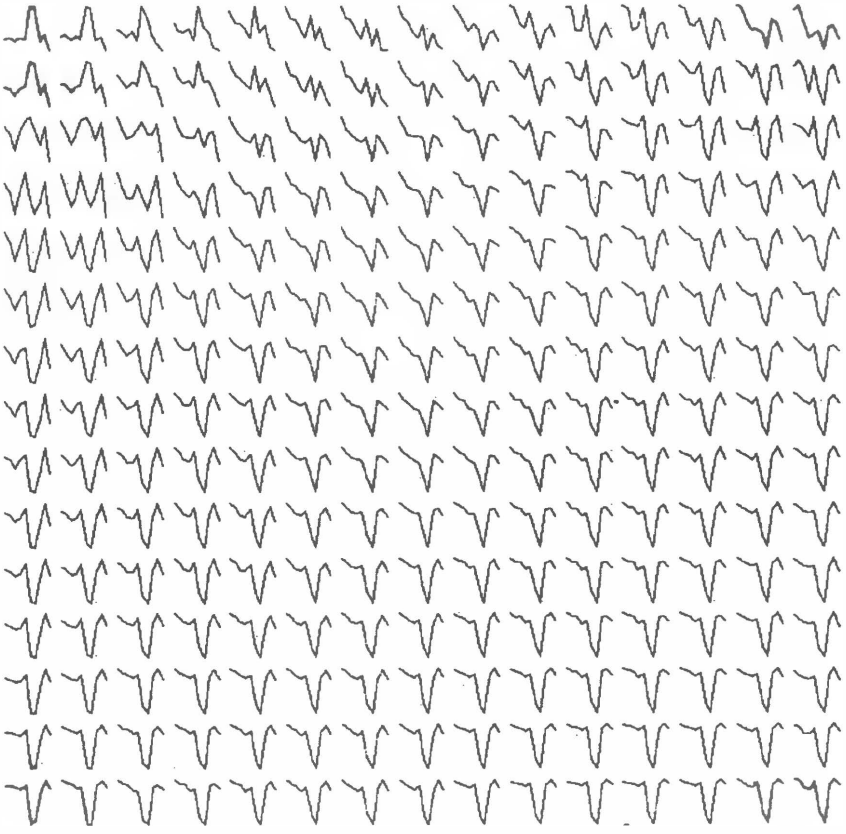
Eigenvalues	Eigenvectors BT	IM	IS	IC
2.541415	-0.622813	0.324506	0.679948	-0.210881
1.865500	0.546949	-0.263069	0.416636	-0.676798
0.076559	0.559085	0.595108	0.366441	0.446084
-1.439227	-0.019337	-0.686540	0.479382	0.546336

Stationary point is a saddle point.

LEADERSHIP PROFILES AND SELF-ORGANIZING MAP

U-MATRIX

LEADERSHIP PROFILES IN 15 X 15 NEURON MATRIX



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